

NOVEMBER 1924 ~ No 226

Monthly

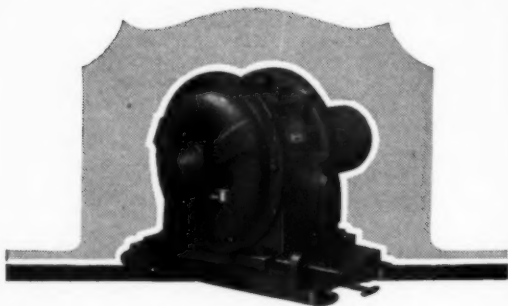
A Reference for Buyers

HITCHCOCK'S
**MACHINE
TOOL
BLUE BOOK**

Distributed Free to Machine Tool
Users Everywhere in the United States and to
Dealers in American Machinery Abroad

Published by
A.H.HITCHCOCK
1220 Mason-Corbin Building
Chicago

FOR INDEXES SEE LAST PAGES



Simple, dependable power units

Electric motors are the first choice for a simple and dependable source of power in modern metal working plants.

Reliance Induction Motors are designed and built to insure the continuous and satisfactory service which metal-working shops expect. Well insulated stators, good bearings and an improved rotor construction are features that help make Reliance Motors dependable power units for such work.

Details are given in Bulletin 5018

Reliance Electric & Engineering Co.

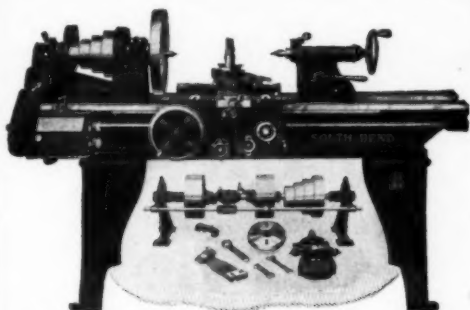
1050 Ivanhoe Road, Cleveland, Ohio

Branches:

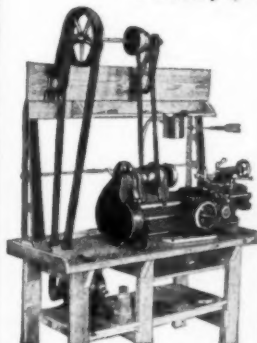
Boston New York Philadelphia Pittsburgh Chicago Detroit Cincinnati Birmingham, Ala.

We specialize in motors sizes $\frac{1}{2}$ to 200 h. p. constant and adjustable speed D. C.; squirrel cage and slip ring A. C.

Type A. A. RELIANCE
Induction Motors



16'x8' South Bend Quick Change Gear Lathe
Price, \$498.00



11'x3½' Bench Lathe Unit
Complete with D. C. Motor, \$315.50

EASY PAYMENT PLAN

Our Easy Payment Plan allows you to install a South Bend Lathe in your shop, by making one payment with the order; the balance to be paid month by month, the amount depending upon the size of the Lathe.

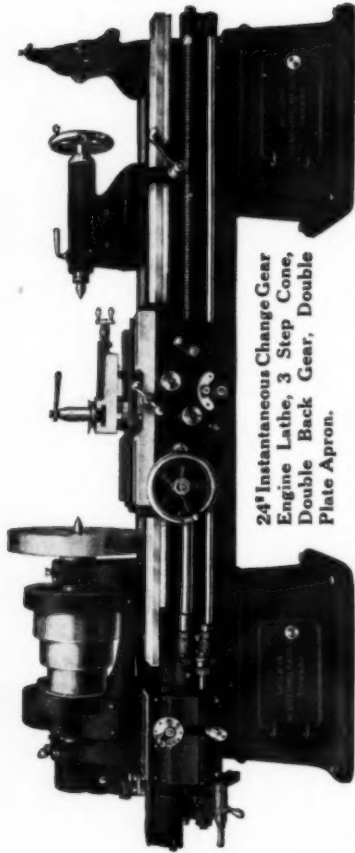
South Bend Lathes are made in all sizes from 9" to 24" swing, and bed lengths from 2½' to 16'.

Write today for Catalog No. 92 which describes our Easy Payment Plan. Mention size lathe desired.

South Bend Lathe Works
 521 East Madison Street
 SOUTH BEND, IND., U. S. A.

SOUTH BEND LATHES

— 31,000 IN USE —



**24" Instantaneous Change Gear
Engine Lathe, 3 Step Cone,
Double Back Gear, Double
Plate Apron.**

We have a few of this pattern left, which on account of discontinuing Cone Driven Type of Lathes, we are offering at the following special prices, NET, f. o. b. Cincinnati:

24"x12' Compound Rest.....	\$1500.00
Extra 2' Bed.....	115.00
Taper Attachment	200.00

**THE BOYE & EMMES MACHINE TOOL COMPANY, 2245 Spring Grove Ave.,
CINCINNATI, OHIO**

SEBASTIAN—



15" Geared Head Lathe
Single Pulley Drive
Without Motor
\$765

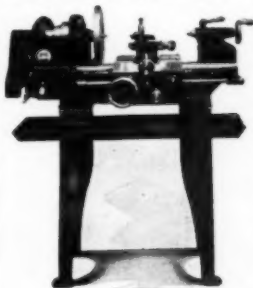
The knowledge, experience and skill derived from almost forty years of exclusive lathe building, has made *Sebastian* Lathes the standard of **QUALITY** in the medium priced lathe field.

Designed Right—Built Right—Priced Right and Guaranteed Correct

Write for details on our new Gold Seal Lathes

The Sebastian Lathe Company
1000 Culvert St., Cincinnati, O., U. S. A.

Monarch Jr. Lathes



are the smallest members of the Monarch lathe family. Yet they are the "biggest little lathes" built.

The Monarch line of lathes includes all sizes and types from the little 9-inch Junior lathe to the big, massive 30-in. lathe. In this line there is a lathe to fill your requirements at the price you want to pay.

Send for Catalog

The Monarch Machine Tool Co.
206 Oak Street, Sidney, Ohio

E-Z THREAD DIAL E-Z



Kind of thread on
lead screw

Square	Acme	V
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Right Hand.....☐

Left Hand.....☐

Number threads per inch ☐

Give distance from
top of carriage to
center of lead screw

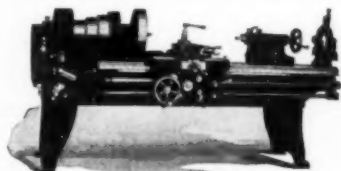
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*Send for one on thirty
days' trial.*

List Price \$14.00

**JAMES M. COLVEN, 20 Wolfe Street,
Yonkers, N. Y.**

SIDNEY LATHES



Accuracy, strength, and a size for every requirement.
Medium, Standard and Heavy Patterns.

Write for complete catalog

The Sidney Machine Tool Co.
Sidney, Ohio



**If you ever ran a lathe it has surely happened to you.
It continues to happen daily in almost all shops.**

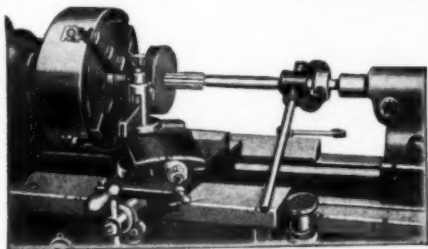
Until the Nicholson Reamer Holder was invented there was no other method by which a mechanic could keep his reamer from jumping in, or prevent it from reaming a tapered hole. This Holder can also be used instead of a chuck for drills and as a hold back in a lathe. It has many uses and saves double its cost in a short time. No. 1 size takes straight shank reamers and drills up to 1" dia., and No. 2 takes up to 2" in dia.

Send us sketch of socket or number of Morse taper of lathe you would like to try one on, and we will send it on trial. If you desire further information and circular, write us.

W. H. Nicholson & Company

117 Oregon Street,

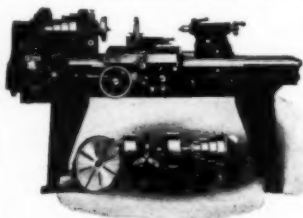
Wilkes-Barre, Pa.



A. V. Carroll Lathes

Have patented invisible gap without extra cost

Made in sizes 12", 14", 16", 18" and 20"



High quality at the lowest possible cost to you.

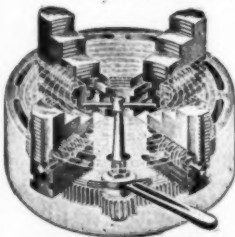
Easy payment plan if desired.

Write for circular, and let us show you a big saving

A. V. Carroll Machine Tool Co., Nerwood,
Cincinnati, O.

Now—It's Your Move!

We've been telling for years what
WE know about Westcott Chucks—



COMBINATION LATHE CHUCK



Now we'd like to have you *buy* one and let it tell its own story in the forceful language of *actual service*—it will be far more convincing than anything we can say or write, and you'll thank us for urging it.

Westcott Chuck Company
Lock Drawer "P" **Oneida, N. Y.**

Makers of lathe and drill chucks since 1873



Consider the Shaping and Slotting
in your Tool Room that come with-
in the Dimensions of the "Rhodes"

Shaper
Stroke
7 in.



Slotter
Stroke
3½ in.

The Rhodes Shaper and Slotter

Don't its dimensions, shown above, cover almost everything for which you use a Shaper and Slotter?

If so, we can save you money, for the "Rhodes" costs much less, of course, than larger machines, although every inch is of high-grade construction, and it is better adapted to work within its capacity.

*Ask your dealer or write for
CATALOG H22*

The Rhodes Mfg. Company
948 Park Road, - Hartford, Conn.

SHAPERS—RHODES—SLOTTERS

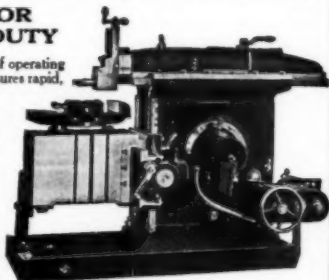
COLUMBIA SHAPERS

SUPERIOR HEAVY DUTY

Centralized location of operating handles and levers insures rapid, convenient operation. Massive construction and powerful drive provides for handling heavy work to best advantage.

SIX SIZES
16"-20"-24"
28"-32"-36"

*Bulletin No. 7 giving
full details sent free
on request.*



Cone, Single Pulley and Motor Drive

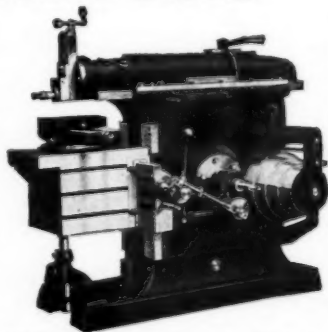
THE COLUMBIA MACHINE TOOL CO., HAMILTON, O.

Manning, Maxwell & Moore, Inc., Selling Agents, New York City and Branches

SHAPERS

12", 14", 16"
Plain Crank,
16", 20", 25"
B. G. Crank,
either Cone
Driven or
through
Speed Box.

32" Back
Geared
Crank, Single
Pulley
Drive.



The Smith & Mills Co., Cincinnati, O., U.S.A.

1/5th Set-up time

usually suffices with

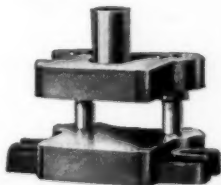
Danly Standard Die Sets

It's a mighty important advantage, particularly on short runs and frequently changing schedules. Alignment is always assured, without care or skill, because the leader pins, fitting the hardened, ground and lapped bushings "without perceptible shake" assure and maintain alignment.

Danly Standard Die Sets can be purchased for much less than you can make your own. Every one is a precision tool combining every known refinement in design and workmanship.

Ten styles and 74 sizes

[*Send for the
facts and prices*]



**DIE SETS
DOWEL PINS
LEADER PINS**

**BUSHINGS
CLAMPS
AUTO-GAGES**

Danly Machine Specialties, Inc.

4913 Lincoln Avenue, Chicago, Ill.

*Just write us the make-and swing of
your Lathe and we'll do the rest*



**Hardinge Standardized
Draw-in Chucks or Collets**

For All Makes of Lathes

Also Collets for Bench Type Milling Machines and for Screw Machines. Prompt shipment from stock. Write for Price List and keep it for reference. And what do you need now?

HARDINGE BROS., Inc., 1770 Berceau Av. CHICAGO, ILL.

Giant "CanTon" Carries Three Tons



**The "Canton" Portable
Crane, Hoist and Truck**

makes it easy for one man to handle machinery and castings which ordinarily require the combined efforts of 6 to 10 men. 'Nuff sed.

That it will pay for itself in a short time is a foregone conclusion. Just drop us a line and

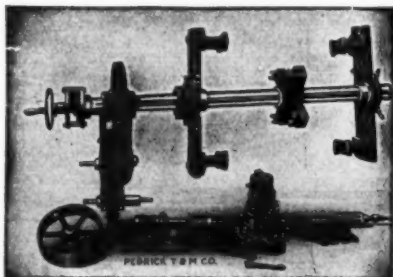
Ask for Bulletin E-8

Canton Foundry and Machine Co.

Canton, Ohio

New York Office: 203 East 15th Street, Second Floor

Pedrick Portable Tools



Portable Cylinder Boring Bars

For reboring in position locomotive cylinders and piston valves, cylinders of stationary engines, steam hammers, air compressors, and a wide range of other work. Often it finishes a job before it could be gotten into the shop, saving time, expense and costly delays. Its saving on work that is difficult to move is out of all proportion to its moderate cost.

As for durability, we doubt if you can wear out a Pedrick built bar. Many machines we made 25 years ago are still in use.

We also build Floor Type Boring Machines, Crank Pin Turning Machines, Pipe Benders, Portable Milling Machines, etc.

Write for copy of new catalog

Pedrick Tool & Machine Co.

3644 N. Lawrence St., Philadelphia, Pa.

Barker Wrenchless Chuck

Developed and Manufactured by Thomas Elevator Co.

A complete Chucking Unit in itself. The Barker Wrenchless Chuck requires No Accessory Installations.



Made in two- and three-jaw styles, for every kind of turret lathe, automatic, and semi-automatic machine work.

Thomas Elevator Co.

Chuck Division

31 So. Hoyne Ave., Chicago

RACINE "JUNIOR"

Portable—High Speed Metal Cutting Machine



**Belt or
Motor
Driven.
Positive
Lift,
Draw
Cut.**

This machine is a wonder in its class. Every shop needs this handy outfit. Can be moved easily and quickly to any location convenient to an electric light socket. So smooth in operation and so vibrationless that it need not be bolted to floor. Normal capacity 0" to 4" — with possible adjustment for cutting larger sizes. Complete and detailed information will be sent you promptly on request.

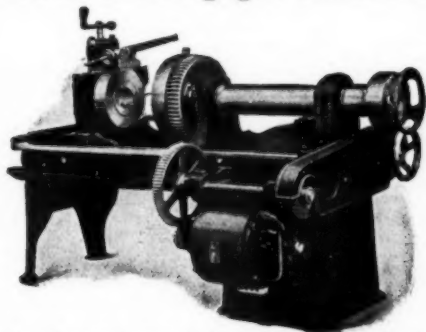
Use "Racine" H. S. Wood and Metal Band Saw Blades and
"Racine" H. S. Tungsten Power and Hand Hack Saw Blades.

RACINE TOOL & MACHINE CO.

Catalog H, 1429 Junction Ave., Racine, Wis.

"STANDARD THE WORLD OVER"

**Speed—plus accuracy
guarantees lowest costs
with B. & K. pipe machines**



No. 3 Peerless Improved. Motor Drive. Cap. $\frac{1}{4}$ " to 3".

JUST ONE GOOD FEATURE doesn't make a good pipe-threading machine—there must be a number of them, and you'll find plenty in B. & Ks. We've been building them for nearly 50 years, and you will be agreeably surprised at both quantity and quality of output.

THE MANY GOOD FEATURES embodied in B. & Ks. assure you of rock-bottom costs at all times—they save labor, time, and money. Equally good for odd jobs or big runs. The 17 styles and sizes thread and cut pipe from $\frac{1}{4}$ to 18 inches in diameter. Writing us about your needs incurs no obligation.

Communicate with us or our agents, at nearest address

Bignall & Keeler Machine Works **Edwardsville, Illinois**

Sales Agents: Manning, Maxwell & Moore, New York, N. Y.

Chicago
Buffalo

Boston
Detroit

St. Louis
Syracuse

Pittsburgh
Seattle

Cleveland
San Francisco

Philadelphia
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AUTO REPAIR SHOPS

**The Whitney Cylinder Grinder Will Make Money
For You Regrinding Automobile Cylinders**

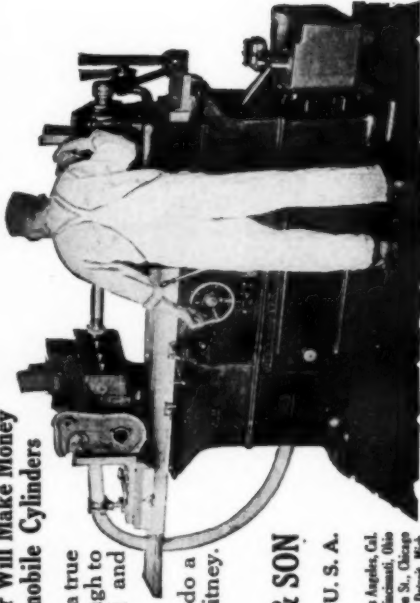
The grinding wheel travels in a true circle and grinds off only enough to make a hole that is round and straight. This machine does the work right and does it quick. That's why you can do a profitable business with a Whitney.

Write for new catalog

BAXTER D. WHITNEY & SON
Incorporated
WINCHENDON, MASS., U. S. A.

Selling Agents:

BERGER & CARTER CO., - 470 E. Third St., Los Angeles, Cal.
E. A. KINSEY & CO., - Indianapolis, Ind., and Cincinnati, Ohio
MARSHALL & HUSCHART MCHY. CO., 17 So. Jefferson St., Chicago
CADILLAC MACHINE CO., Dearborn & E. Lafayette Sts., Detroit, Mich.



Grand Rapids Universal Grinder

MOTOR DRIVEN

With All Overhead Works Eliminated



GRAND RAPIDS No. 3 & No. 4 Universal Grinders
are furnished either hand feed or power feed,
wet or dry, motor drive or belt drive.

CIRCULAR ON REQUEST

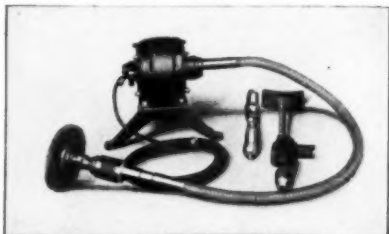
Gallmeyer & Livingston Co.

342 Straight Avenue, S. W.

GRAND RAPIDS, MICH.

The Whirlwind Buffer and Grinder

Will cut the cost on any unhandy grinding or polishing job



Send for our latest bulletin

Stow Flexible Shaft Co., 3454 Ludlow St.,
Philadelphia, Pa.

The Best Since 1876

Patented
Jan. 30, 1917



Type 6

“Autex” Extension Reel

Rapidly finding a place in the largest industrial plants, machine shops, service stations, etc., in the U. S. Used for both electric lamp and power extensions.

Approved by Underwriters

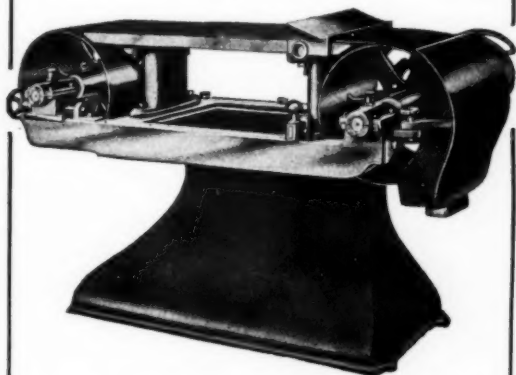
Write for descriptive circular

The Cincinnati Specialty Mfg. Co., Inc.
1903 Powers St., Cincinnati, Ohio

PEERLESS SURFACING MACHINES

Will reduce grinding and finishing costs
and give you better work.

Can be substituted for many expensive
milling machine and planer operations.



Made also in vertical and bench models.

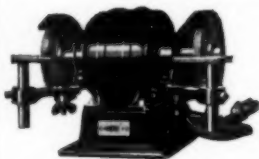
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PEERLESS SURFACING MACHINE CO., Inc.

TROY, N. Y.

In Canada: A. R. WILLIAMS MACHINERY CO., Toronto

Insures Better Cutting Tools And at Less Cost



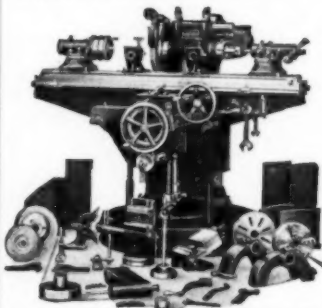
A Bodine Portable Electric Tool Grinder

—placed in every department of your plant, will save time and insure better cutting tools.

Even the skilled mechanic finds it difficult to put the best cutting edge on tools on the large floor type of grinders with their coarse-grained wheels. An untrained mechanic can get better results on the "Bodine" in less time. Try one out in one department and you'll want more. You'll find it a high-quality product in every sense, at a price that is not unreasonable.

The Bodine Electric Company
2256 West Ohio St., Chicago, Ill.

Thompson Universal 10"x36" Grinder



For Every Kind of Grinding

And good at all of them, including plain, surface, edge, die, cutter and internal grinding. The work adjusts to a fixed grinding wheel.

Write for Bulletin

Manufactured By
THE THOMPSON GRINDER CO., - Springfield, Ohio



Profit by the Experience of the Nelson Tool Company

THE Nelson Tool Company, New York, prominent makers of tools and dies, have for several years been using Dumore grinders with the utmost satisfaction. They recently told us that in some cases the Dumore grinders could be used to much better advantage than any other grinder of similar character.

Why not profit by the experience of the Nelson Tool Company and other famous users whose high standards of workmanship are so well met by Dumore grinders? If you make jigs, dies, gages or other hardened tools—simple or intricate—you can depend upon Dumore grinders to fulfill *your* every requirement just as efficiently and satisfactorily.

Six styles and sizes—with individual speed ranges—provide a grinder with the correct cutting speed for any grinding need. Dynamic balance and smooth operation of Dumore grinder motors eliminate vibration. Ability to operate on either alternating or direct current, assures constant usage of these tools in plants supplied with two varieties of power current. Portable, they can easily be taken to the job—saving the cost of tearing down expensive set-ups.

These are but a few of the advantages of Dumore grinders. Our new catalog gives complete information on *all* their advantages. Send for this interesting book. You may learn a hint or two that will prove mighty valuable.

Wisconsin Electric Co., 43 Sixteenth St., Racine, Wisconsin

DUMORE HIGH SPEED GRINDERS

The **BARKER** GENERAL PURPOSE **VICE**

For Planers, Shapers, Drilling and Milling Machines



Two Sizes

Width of jaws 11½"–12"

Depth of jaws 2½"–3"

Jaws open 8"–12"

Weight 180–210 lbs.

Also 16" Mold Makers' Vise

OUR MOLD MAKERS' VISE has 13" width of jaws, 7" depth, and jaws open 16"—weight 290 lbs.

ALL BARKER VISES are made extra heavy, with steel faced jaws, and are graduated to swivel any angle. They stand lots of hard usage.

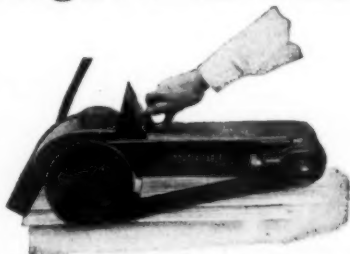
Get in touch with us before buying

WM. BARKER & CO.

Manufacturer of Machine Tools,

COVINGTON, KY.

Straight Grain Finish



Unsurpassed for grinding or polishing all work up to 18 inches in length.

Operates in either a horizontal or vertical position from any electrical circuit. *Write for circular.*

Porter-Cable Machine Co., Syracuse, N. Y.



Type C-1 Tool

**More
Economical
than a
Diamond**

You will produce work at
infinitely less expense by
using the

**"Precision" Roughing
and Semi-Finishing
Wheel Truing Tool**

Not a substitute for the diamond, but built on
an entirely different principle, which is an im-
provement over the diamond in that it pro-
duces work equal or better than that of the
diamond, and at a greatly reduced cost.

**It will pay you to put Precision
Wheel Truing Tools to a test.**

Ask for descriptive booklet

**The Precision Truing Machine & Tool Co.
CINCINNATI, OHIO**

Compact—Sensitive—Accurate—Durable
The "ATLAS JUNIOR" INDICATOR

Reads over a range of 0.055"—at a glance. Dial may be set at zero after adjusting to work. Contact point can be locked in position for inspecting. Keep it in your pocket and use it anywhere. Details?

PRICE \$7.50



Sold by Dealers or Direct

WALLACE BROS.
 160 N. Wells St., Dept. B.B. CHICAGO, ILL.

FEDERAL
DIAL COMPARATOR

DESIGNED FOR

The rapid checking of parts to close limits by unskilled labor.

Furnished with Indicators graduated .001"—.0005"—.0001".

Does what an Amplifying Machine will do and costs less than half as much.

Send for our complete catalog of Dial Indicators, Cylinder Gauges, Comparators, Thickness Gauges, Piston Gauges, Rubber Gauges, Piston Pin Gauges, Fabric Gauges, Paper Gauges, Wire Gauges, Piston Ring Gauges, Thread Lead Gauges.



Federal Products Corporation
 Elbow & Chestnut Sts., Providence, R. I.

Webster & Perks
**GRINDING
MACHINES**

ABSOLUTELY NEW
Yet Priced to Compete with Used Tools

Universal machines combine tool room accuracy with great versatility, rigidity and power for quantity production. Plain machines handle either straight or taper grinding with extreme accuracy. All machines are brand new, and are given thorough inspection and test under belt before shipping. A real bargain at the price.

Send for Circular

Barber-Colman Company
Rockford, Ill., U. S. A.

The Anderson Improved Ever-Ready Balancing Ways



For quickly balancing 'most anything that revolves, up to 24,000 lbs.; for testing straightness of shafts, crankshafts, etc. Always ready; no centers or leveling required. Glass-hard spindles do not lose accuracy; chilled iron discs; sensitive bearings.

"Swing"	20"	40"	60"	72"	96"	72"
Greatest distance bet. standards	20"	30"	30"	66"	88"	20"
Capacity in lbs.	1000	2000	2000	5000	10000	24000
Approx. shipping weight	45	90	150	350	650	
Code	Bend	Bid	Bis	Bib	Ben	

Any of above can be furnished with longer shafts

Anderson Bros. Mfg. Co.
1915 Kishwaukee St., Rockford, Ill.

For Sure Balance--

an absolutely level and solid "Way" is necessary

Bowsher "Balancing Ways"



are brought to an absolute *level* in ten seconds. No revolving parts.

The edges or "knives" upon which the work is tested are ground *true*, and are mounted upon the planed "ways" of a heavy bed or frame.

Standards adjustable to suit length of arbor.

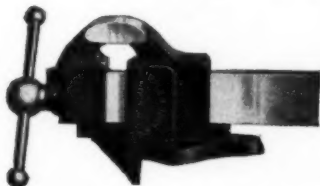
Three sizes for floor—one for bench use

Send for Catalog "F"

The N. P. Bowsher Co., South Bend, Ind.

"The Strongest Vise" —

With a STEEL Slide



The Simplex "Gray" Bench Vise

Cast iron slides cause 80% of all vise breakage.

The slide of the Simplex "Gray" is made from a *solid steel bar*, milled out underneath for the screw and nut, *eliminating the possibility of breakage*. This one feature alone places the Simplex "Gray" in a class by itself.

Other Features: Removable steel jaws, held in place with dowels as well as screws, which positively prevents them from becoming loose. Malleable iron nut with front projection, which changes the action on this part from a tensile stress to a shearing strain. Screw made of a special steel which will not elongate and become inoperative from change of lead. Body of a specially toughened grade of crucible iron.

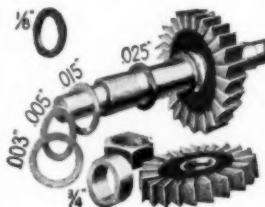
If you want a vise with the reserve strength to last longest under use and abuse, let us describe more fully and quote you on the Simplex "Gray"

Simplex Tool Company

Woonsocket, Rhode Island

Steel Spacing Washers—

Made of a good grade of Cold Rolled Strip Steel, also known as Shim Steel



Stock sizes for arbors of following diameters: $\frac{3}{8}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, $\frac{7}{8}$, 1, $1\frac{1}{8}$, $1\frac{1}{4}$, $1\frac{3}{8}$, $1\frac{1}{2}$, $1\frac{3}{4}$, $1\frac{7}{8}$, 2, $2\frac{1}{4}$, $2\frac{1}{2}$, 3, $3\frac{1}{2}$ and 4 in. and larger.

Stock thicknesses: .002, .003, .004, .005, .006, .007, .008, .010, .012, .015, .020, .025, .032, .047, .063, .093 and .125 inch.

Other thicknesses up to 3.000" made to order, with keyways if so ordered.

Ask us to send samples; you'll like them

Detroit Stamping Company
3443 West Fort St., Detroit, Mich.

Save Time Setting Gang Milling Cutters

Eliminate
Thin
Washers



Hardened
and
Ground

PATENTED

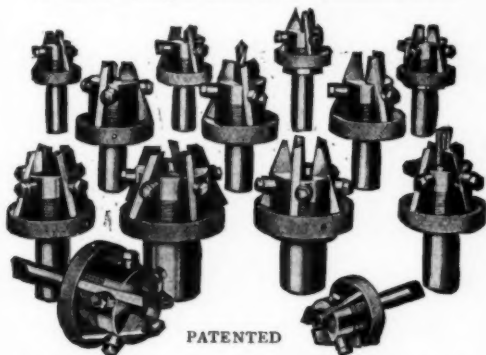
"Wear-Ever" Adjustable Spacing Collars permit setting cutters to the thousandth part of an inch without removing from the arbor.

Stock sizes for $\frac{3}{4}$ " to $2\frac{1}{2}$ " arbors, sent on approval
They are adjustable in 12 steps of $2/1000$ inches

SCULLY-JONES & CO. TOOL DIVISION
13th and Robey Streets CHICAGO, ILL.

The Adjustable Blades of Genesee Hollow Mills

Outlast Three to Five Solid Tools
And are Replaceable at Nominal Cost



Rapid—Accurate—Economical

Rapid—They cut up to 15" a minute in steel, and utilize machines to their full capacity.

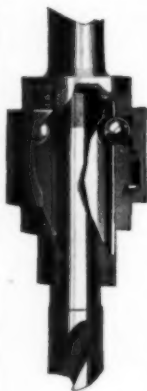
Accurate—Adjustable in thousandths to exact size, which cannot change as it does in solid tools after a few grindings.

Economical—Reduce operating costs and save the buying of many new tools. Each size covers a considerable range, and 14 sizes cover the entire range from $\frac{1}{4}$ " to 2". One set of blades outlasts 3 to 5 solid tools, and may then be replaced at nominal cost. They are also stronger than solid tools.

Consult with us freely, for economy and rapid production

Genesee Manufacturing Co., Inc.
Rochester, N. Y., U. S. A.

Manufacturers of Genesee Rapid Production Tools



The Drill Chuck

You've Been Looking For

THE "TITAN" has the best features of other high-grade chucks, plus—

A Real Quick Change

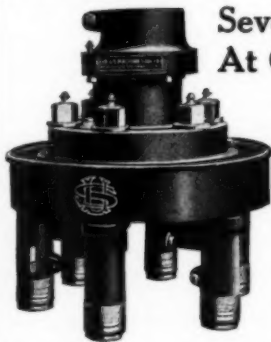
No separate key to get lost. No hammer or special device required. Simply strike end of drill and out it comes. A blind man can do it.

Sizes Nos. 0 to 5, for any taper shank drill, counterbore, reamer, etc. The broken tang collet gives a positive drive to drills with broken tangs.

Write for descriptive price list

Titan Tool Company

Erie, Penna.



Several Holes— At Cost of One

A U. S. Multiple Spindle Drill Head transforms a single-spindle drill into a multiple spindle. You can drill two or more holes with the same speeds and feeds you use for drilling one.

Special Heads Made to Order

They all have patented double adjustment, which permits drilling in any pattern. *Writing us incurs no obligation.*

The United States Drill Head Co., 1950 W. Sixth St., CINCINNATI, O.

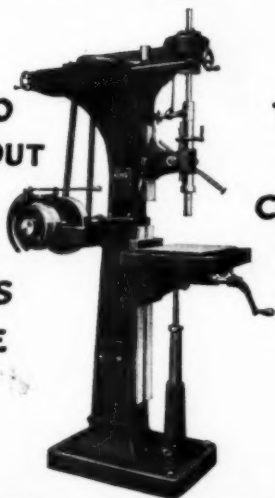
Michigan Agents—National Sales Engineering Corp., Detroit, Mich.

\$

\$

GET
THE
Avey

TO DO
WITHOUT
AN
AVEY
COSTS
MORE



THAN
IT
COSTS
TO
BUY
IT

\$

\$

THE AVEY DRILLING
MACHINE CO.
CINCINNATI
OHIO

The "Utility"

Counterbore and Spot Facer

*Write
for
Catalog*

With the Pilot
that cannot
twist off



No more broken pilots.

No more broken cutters.

No more trouble in removing cutters from holders.

No more trouble with set screws coming loose.

Cutter drive is simple and powerful, and the cutter is easily removed. Counterbore and spot facer troubles practically eliminated.

Write for Catalog and Price List of Interchangeable Utility Tools

The J. C. Glenzer Company

6469 Epworth Blvd., Detroit, Mich.

Substantial Sensitive Drills

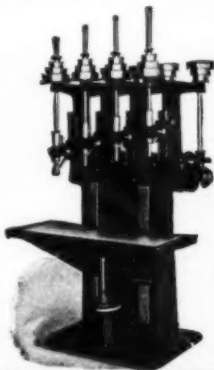
Overhang 7"

Capacity $\frac{1}{2}$ "- $\frac{5}{8}$ "

Note width of table bearings and large base.

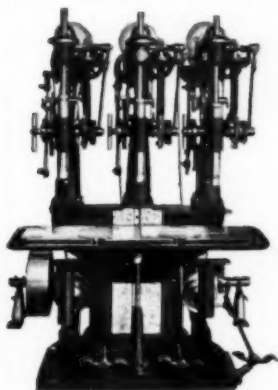
FRANCIS REED CO.

43 Hammond St.,
WORCESTER, MASS.



Makers of Auto Parts and Agricultural Implements

Find that the "Rockford" Cuts Costs



**It's an Up-To-Date
Automatic Gang
Drilling Machine**

*Built with
2, 3, 4 and 6
Spindles*

*Box
Column
Type*

An Investigation—of this modern machine is all we ask. You will find that the better design, the expert workmanship and the superior conveniences, all combine to guarantee you a larger output of accurate work.

Automatic Return—When each spindle has completed its operation it automatically returns to its highest position where it remains until the starting lever is tripped, when it immediately drops to position above the work.

Please Note—By removal of the stop pin in the cam, the spindle will immediately return to lowest position above work, and when tripped by automatic stop, will return to highest position and immediately drop again to work, repeating the movement automatically until the power is shut off. The spindle can be pulled ahead of the feed while in operation, a great advantage in drilling through a cored piece, piping or similar work.

We invite you to submit your drilling problems to us

Rockford Drilling Machine Co.
Rockford, Illinois

Thor Portable Electric Drills



**POWER—
SPEED—DURABILITY**

in this portable drill

You'll find the combination of power, speed, and durability in the Thor portable drill. Built throughout with rugged, easy running parts, Thor drills are designed for greater speed in production—to bore clean cut holes easily and quickly through the hardest material, in close quarters and anywhere in the plant. There are 64 different types and sizes. Jacobs chucks are regular equipment. There is one that will save you time and labor. Our catalog will show you which it is. Write for it.

Independent Pneumatic Tool Co.
600 West Jackson Blvd., CHICAGO, ILL.

30-Day Offer On the Pattern Maker's Pal



Consisting of

- 1/4 h. p. Westinghouse motor
- No. 5x4' shaft
- No. 5x4' sheath
- Can of grease
- No. 5 handpiece with two wrenches
- Super service drop cord and switch
- 14 Burs in block
- Grinding spindle
- 3" Grinding wheel
- Sanding drum

Regular price of 110 volt, a. c., 3450 r. p. m. outfit is \$75. Our special 30-day offer at... **\$63.**

Regular price of 110 volt, a. c., 1725 r. p. m. outfit is \$70. Our special 30-day offer at... **\$60.**

Only 65 sets at these prices. First come, first served.

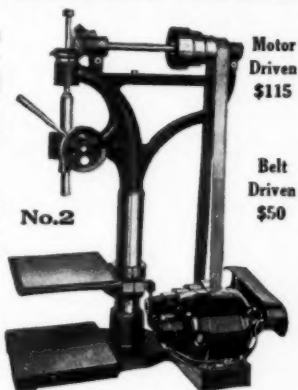
The Hergi Mfg. Co., 250 Fifth Street, Bridgeport, Conn.

BURKE Bench Drills

Burke Bench Drills are unexcelled for practical results, and are priced within the reach of every shop.

Furnished both belt and motor driven, with $\frac{3}{8}$ to $\frac{9}{16}$ -inch capacity.

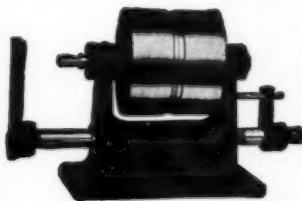
The No. 2, shown in the illustration, is one of our leaders.



Motor
Driven
\$115

Belt
Driven
\$50

We Call It a Tapping Machine—



FRICTION DRIVEN

Perhaps we should call it a *Tapping, Burring, Reaming, Lapping, Countersinking and Assembling Machine*, as it is equally efficient on all of these operations and many others where a *friction drive* is desirable.

Let us send you a machine on trial for 10 days and prove to yourself that the machine will do all we claim for it. Increase your production 20 or 30 or more to one over hand tapping, and do it easy without breaking taps. Built in three sizes, $\frac{3}{16}$ -inch at \$25, $\frac{1}{2}$ -inch at \$45, and $\frac{3}{4}$ -inch at \$60.

The Burke Machine Tool Co.
297 East 16th Street, Conneaut, Ohio

Steel Bearing Balls

Brass
and
Bronze
Balls



Steel
Burnishing
Balls

Ask for Price List 23-H

The Abbott Ball Company

Elmwood District, Hartford, Conn.

Difficult Riveting —



Made Easy on the “GRANT” ROTARY

Send us a sample of your most difficult riveting, and let us show you what the Grant Rotary will do, with time and cost estimate. Especially valuable in hard-to-get-at places.

It has an unequalled combination of other good qualities, too. Speed, a rivet a second; highly polished heads; no hammer or tool marks; just the desired degree of tightness or looseness to every rivet; and it's noiseless.

*Send along your samples for riveting
And ask for the Catalog*

The Grant Mfg. & Machine Co.
C. E. Station, Bridgeport, Conn.

The Taylor & Fenn Sensitive High-Speed Radial

**Belt or
Motor
Drive**



This great manufacturers' drill combines the speed of the sensitive with the flexibility of the radial, for practically all drilling requirements within its range. Drill the big pieces on the base and the small pieces on the table.

Tapping heads, power feed heads or hand lever feed heads may be used singly or in combination.

The drive is positive, through gears and silent chain. The spindle has three speeds and is bored for No. 2 Morse taper.

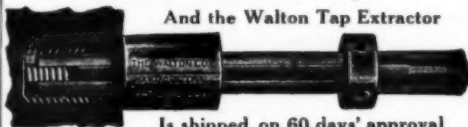
*A thorough investigation of this machine will repay you
We shall be glad to furnish complete data upon request*

The Taylor & Fenn Co.
Hartford, Conn., U. S. A.

You May Break Some Taps

Within the Next 60 Days

And the Walton Tap Extractor



Is shipped on 60 days' approval

LET US send you the Walton on 60 days' approval, and if you break any taps during that time, you'll never let it come back—it costs so little and it saves so much.

THE WALTON quickly and easily removes taps which are broken at or below the surface of the work, without injury to the threads. Sizes No. 8 to 1¼".

Better do it now. There's no time like the present.

THE WALTON CO., Hartford, Conn.



Drill Press Attachment

FOR

Driving Screws and Nuts

Several Sizes

Manufactured By
N. A. Strand & Co.
CHICAGO

5001 North
Lincoln
Street

Drive
Them Down
by Power



Tapping at 4000 R.P.M.

Production of 1000
pieces or 2000
No. 6-32 tapped
holes per hour is be-
ing obtained on this
brass Electric Con-
nector, running the
tap at 4000 R.P.M.



*Why not let us show
you how to get similar
production on your
small tapped holes?*

Leland-Gifford Co.
Worcester, Mass., U. S. A.



Whitney Friction Driven No. 1 Tapping Machine

Saves Taps—Insures Perfect Threads and Holes



Capacity
Up to $\frac{1}{4}$ "

Weight
85 lbs.

Friction drive and reverse—very sensitive. Ball bearing end thrust. Saves taps, gives perfect results, and its quick and easy control insures maximum output. Complete with countershaft, Jacobs chuck and cross bar for holding work fitted to your job. Special fixtures on order. Write for prices.

Whitney Metal Tool Co.

95 Forbes Street,

Rockford, Ill.



Armstrong Lathe Dogs and Clamps

Drop Forged Steel
All Sizes and Shapes

The Dogs are thoroughbred; the
Clamps have lots of back-
bone. Screws are alloy steel.

Complete Catalog Free



Armstrong Bros. Tool Co.

"The Tool Holder People"

308 N. Francisco Ave., Chicago, U. S. A.

A Better Collapsible Tap



THE R-S

Capacity 1" and up

This rugged, serviceable device is the result of long experience in the development, design and manufacture of threading tools. We offer it as a companion tool to the famous R-S (Boehm) Automatic Die-Head.

It has more than made good in every shop in which it has been used.

It is *positive* in action, so that *it will always collapse* at the desired point without dependence upon any kind of spring action. A movement of the knurled ring one full graduation varies diameter of cutting points *one-half of one-thousandth* of an inch, from which it is obvious that adjustments may be made infinitely close. It is chip proof.

Better have complete data—the pleasure will be ours, but most of the profit will be yours

Rickert-Shafer Co., 1110 Cherry St., Erie, Pa.

Edgemont Friction Clutches

For All Transmission Purposes

Extended Sleeve
Clutch



Expanding
"Type B"

This clutch is designed for driving wood, steel or cast iron pulleys, gears, drums, rope sheaves, sprocket wheels, etc., on the sleeve. Edgemont Friction Clutches are made for all transmission purposes. Glad to advise on your needs—right now.

Edgemont Machine Co., Inc., DAYTON, OHIO



Difficult tapping— made easy and safe

The Woodstock Improved Safety Tapping Chuck has revolutionized tapping in many shops. Users find it successful in tough metals, blind tapping and bottom tapping in shallow holes, where a stop on the machine is worthless.

For more than eight years the Woodstock has been solving difficult tapping problems, and could also solve yours. Made in five sizes.

*Just ask us to send one on trial
for that "tap busting" job.*

**Peter Bros. Mfg. Co., 115 Railroad St.,
ALCONQUIN, ILL.**

APEX

PATENTED

Safety Friction Tap Holder

Shanks
To Fit All
Tapping
Machines



Positively
Prevents
Tap
Breakage

Furnished in Three Sizes
Capacity No. 0 to 1¼"

Write for Bulletin No. 8

The Apex Machine Co.
Dayton, Ohio

SEND BLUEPRINTS for Quotations on
**Hollow Bored Forgings
and Steel Shafts**



**Piston Rods
Clutch Shafts
Lathe Spindles**

**Rams
Steel Pipes
Etc., Etc.**

You'll be pleased with our service

**American Hollow Boring Co.
Erie, Penna.**



Special Machinery

**Contractors, Builders, and
Designers**

C. H. Cowdrey Machine Works

Established 1875

Fitchburg, Mass.

NATCo

**Straight Shank
Adjustable
Holders**



**Economy
Convenience
Durability**

Write for Circular

**The
National Automatic Tool Co.
Richmond, Indiana**



"Borgeson Universal Joints"

**Are you a user of Universal Joints?
If so!**

Remember well and bear in mind that a good Universal Joint is hard to find. But if you want one tried and true, you will want the "Borgeson" before you are through.

You will become not only a "Buyer" but a "Booster" for "Borgeson."

SIZES: $\frac{3}{8}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, $\frac{7}{8}$, 1, $1\frac{1}{8}$, $1\frac{1}{4}$, $1\frac{1}{2}$, $1\frac{3}{4}$, 2, $2\frac{1}{2}$, $2\frac{3}{8}$.

Should you require Special Universal Joints, be sure to write for quotation.

*Complete description gladly
furnished upon request*

The Borgeson Mfg. Co., Inc.
Torrington, Conn.

Vanderbeek Giant Joints



**Efficient to
an angle of
45 degrees**

**Vanderbeek
Universal
Ball Joints**

Tested by Time

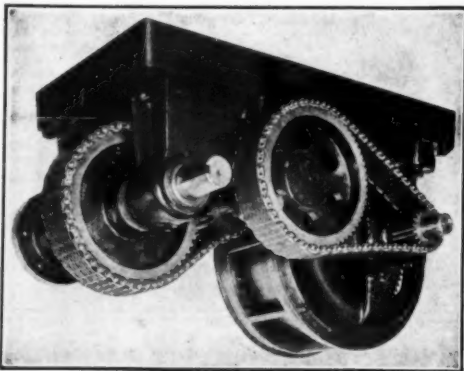
Used by U. S. Gov't. and Best Shops

These joints are entirely enclosed against dirt, are self-oiling, have all wearing contacts of hardened steel of large diameters, and designed for the most severe strain.

American Tool Works, Inc.
Hartford, Conn.

"WHITNEY"

Silent Chain Drives



40 H. P. "WHITNEY" Silent Chain Drive operating Double Reduction Unit connecting Motor to Line-shaft in a large Pin Plant.

These smooth running "WHITNEY CHAINS," operate on short centers and deliver practically every ounce of power to the driven wheels.

Let us fit the drive to the job

THE WHITNEY MFG. CO., - HARTFORD, CONN.

NEW YORK
L. C. Biglow & Co., Inc.
243 W. 55th St.

BOSTON
George C. Steil
727-A Boylston St.

PHILADELPHIA
R. J. Howison
624 Race St.

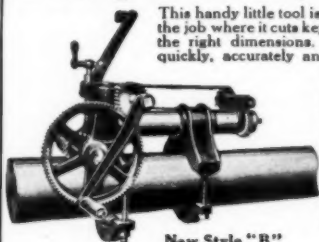
PITTSBURGH
Pittsburgh Gear & Mch. Co.
27th & Smallman Sts.

SYRACUSE, N. Y.
George McPherson
201 Norwood Ave.

SAN FRANCISCO
A. H. Coates Co.
615 Howard St.

SEATTLE, A. H. Coates Co., 1115 E. Union St.

A Strong Portable Key-Way Cutter



New Style "B"

Write for prices and literature illustrating and describing several models, including motor driven machines.

This handy little tool is easily taken right to the job where it cuts key-ways of just exactly the right dimensions. It does the work quickly, accurately and at minimum cost, saving labor and money. Just clamp the tool to the shaft and turn the crank.

Style "B" has six milling cutters and cuts keyways from $\frac{1}{4}$ " to 2" wide, in shafting 2" to 8" in diam. and 12" long without resetting.

THE BUCHER-SMITH CO.
East Liverpool, Ohio

MOST LIKELY IT IS A KEYSEATER

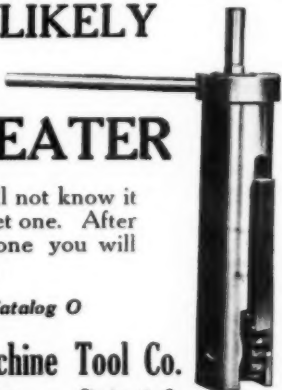
but you will not know it until you get one. After you have one you will want more.

Just Catalog O

National Machine Tool Co.

2268 Spring Grove Ave.,

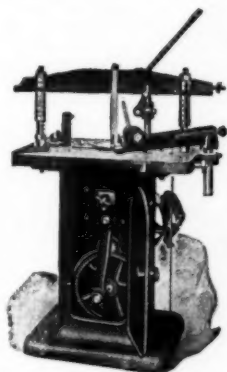
Cincinnati, O.



Pulleys, Handles, Gears, Etc.

All small work
done economi-
cally on the

DAVIS KEYSEATER



Sample of Cutting Time on Gears

Size of Blank	Kind of Stock	Size of Keyway	No. at 1 Chucking	Cutting Time
$3\frac{1}{4}'' \times 3\frac{1}{4}''$	Steel	$3/16'' \times 3/32''$	3	1 min. 30 sec.
$6\frac{3}{4}'' \times 1\frac{1}{8}''$	C. Iron	$\frac{1}{4}'' \times \frac{1}{8}''$	1	20 sec.
$2\frac{5}{16}'' \times 9/16''$	Steel	$\frac{1}{4}'' \times \frac{1}{8}''$	4	40 sec.
$3'' \times 4\frac{3}{4}''$	Steel	$5/16'' \times 5/32''$	1	1 min. 40 sec.
$3'' \times 7/16''$	C. Iron	$\frac{1}{8}'' \times 1/16''$	4	30 sec.
Oil Groove	C. Iron	$\frac{1}{8}'' \times 27/64''$	1	30 sec.
$14'' \times 11''$	C. Iron	$1\frac{1}{4}'' \times \frac{3}{8}''$	1	45 min.

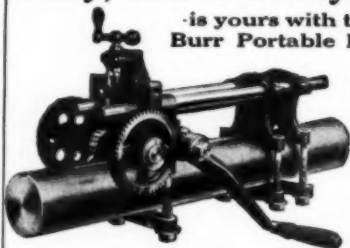
THE DAVIS stands for rapid production. It meets every requirement of a manufacturing machine, and is economical on either large or small lots. Also adapted to slotting, oil-grooving, cutting keyways in bell-cranks and similar work. Two sizes—No. 1, capacity $\frac{1}{8}$ to 1 in.; No. 2, capacity $\frac{1}{8}$ to $\frac{5}{8}$ in.

Glad to post you fully. Just drop a line to—

Davis Keyseater Company
255½ Mill Street, Rochester, N. Y., U. S. A.

Easy, Low Cost Keyseating

**is yours with the handy
Burr Portable Keyseater**



No need now to dismantle your shafts and machines. A "Burr" cuts accurate keyseats up to 12-in. long in shafting up to 5" diam. with no trouble or any resetting.

Over Nine Thousand in use today! Your choice of seven sizes. A single emergency job often pays for it. Write to

JOHN T. BURR & SON
422 Kent Ave., Brooklyn, N. Y.

Tools and Patterns

By Albert A. Dowd, Consulting Engineer

A survey of materials, tools and fundamental processes of pattern making.

CHAPTER HEADINGS

Hand and Forged Tools.
Drop Forging,
and Blanking Dies.
Drilling, Boring, Reaming.
Turning, Forming, Threading.
Milling and Planing.
Broaching.
Surface and Cylindrical
Grinding.
Shop Equipment.
Milling Fixtures.

Generating & Forming Attach.
Fixtures and Jigs.
Lubrication of Cutting Tools.
Cutting Feeds and Speeds.
Planning and Layout.
Estimating Costs.
Internal, External and
Thread Gauges.
Profile & Indicating Gauges.
Patterns.
Face Plate Fixtures Patterns.

434 Pages, 5½x7¼ Inches, Flexible Binding

PRICE \$6, POST PAID

Hitchcock's Machine Tool Blue Book
1235 Caxton Bldg., Chicago

Catlins are First Choice

In Hundreds of Shops Today



Because—

*Supreme
in Speed
Capacity
Simplicity*

CATLINS are now in use at home and abroad in shops and plants of every size and description.

This universal popularity can be ascribed to three characteristics—CATLINS

- (1) do better work
- (2) in less time and
- (3) at less cost.

CATLINS have won their way to the top because they invariably make good in every shop—in private or in government plants. They have less than half the number of parts of other keyseaters, and these parts are simpler and more substantial, without being clumsy. Picture shows Catlin No. 1, belt drive; also built motor drive. We build a complete line of keyseaters.

Let us mail you the folder, shop records and prices

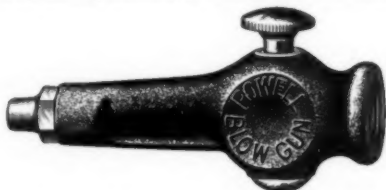
Chattanooga Machinery Company

2401 Bennett Ave.,

Chattanooga, Tenn.

POWELL BLOW GUN

Designed to dispense air with utmost economy.
Used for cleaning machines, machine tools and work benches.



Made with different tips for special requirements.

Circular on request.

The Wm. Powell Co.
2525 Spring Grove Ave., Cincinnati, O.

Single Unit Heat-Treating Furnaces

Forge, Semi-Muffle, Full Muffle
and Combination Types



Furnaces for annealing, carbonizing, melting, hardening and tempering; in a full range of sizes to meet the needs of the small tool room or machine shop, as well as the largest manufacturing plant.

*Ask the man who uses one;
if you don't know him, ask us*

A. B. KIDDER, 1104 5th St., N. E. CANTON, O.

NOW—There are 300 different sizes of Bunting "Ready Made" Bushings



You can now get 300 different sizes of completely machined and finished Bunting Phosphor Bronze Bushing Bearings out of stock, at any time, in any quantity. By increasing this range of sizes these "ready to use" bushings cover practically every modern application. They cost less. They are always in stock. Small lots priced on the big run basis. Stock list W shows sizes and prices.

Promptly sent on your request

**THE BUNTING BRASS & BRONZE COMPANY
TOLEDO, OHIO**

Branches and Warehouses at

NEW YORK
245 West 54th St.
Circle 0844

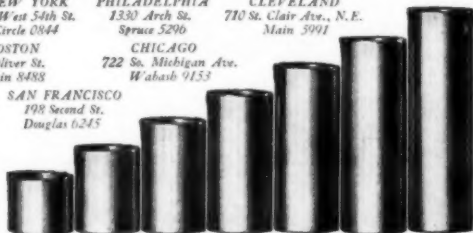
PHILADELPHIA
1330 Arch St.
Spruce 5296

CLEVELAND
710 St. Clair Ave., N.E.
Main 5991

BOSTON
30 Oliver St.
Main 8488

CHICAGO
722 So. Michigan Ave.
Wabash 9153

SAN FRANCISCO
198 Second St.
Douglas 6245



**BUNTING BUSHING
BEARINGS**

Weigel Single-Wheel "Kwality Kaster"

Will not crush or break. Swivels on steel machined rollers. The best single caster on the market.

Double-Wheel "Trukaster"

Lasts three times as long as others. Easiest running, strongest, and most durable double-wheel caster made. Has heavy plates and axes.

Write for Price List

**THE HAMILTON
CASTER & MFG. CO.
HAMILTON, OHIO**



The Blue Book

**Goes to the Heart of 96% of
the Best Plants in the Country**

The above statement is the result of careful mail inquiries directed to thousands of the larger tool-using concerns.



Speaking of Dust Collectors

Knickerbocker asks:—

WHEN a number of the biggest plants in the country use from 15 to 35 of a certain kind of Dust Collector;

WHEN users write in and say that this Collector is saving nearly half the power formerly used;

WHEN one firm has had no repairs whatever on this Collector after three years' steady use—

DOESN'T it begin to look as though there was something *unusually good* about that Collector?

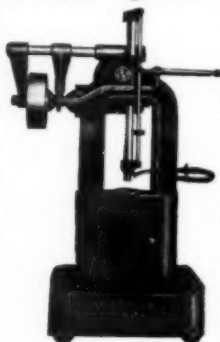
Well, the "Rarefied" Dust Collector is exceptionally efficient and economical. It serves better and longer.

Our Booklet tells about this superior Collector in an interesting way. Let us mail you a copy.

THE KNICKERBOCKER COMPANY
JACKSON, MICH.



American 18" Vertical Broaching and Assembling Press



A Dependable Machine At a Moderate Price

Capacity, 6 to 8 tons pressure.
Maximum stroke, 18". Space
between frame, 12". Floor
space, only 4½ feet square.

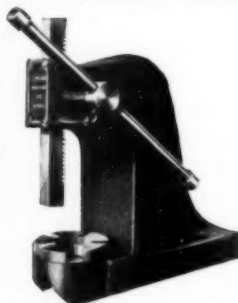
Uses standard reducing bush-
ings. Friction pulleys afford a
flexible control. You could
pay more and get less.

Write for complete data

**American Broach
and Machine Co.**

Ann Arbor, Michigan

Sheldon Arbor Presses



Semi-Steel Frames.

**Alloy-Steel Rams and
Pinions. Heat Treated.**

Large Stub Teeth.

**Square Rams, careful-
ly fitted, insuring
proper alignment.**

*Ask for complete cata-
logue and price list*

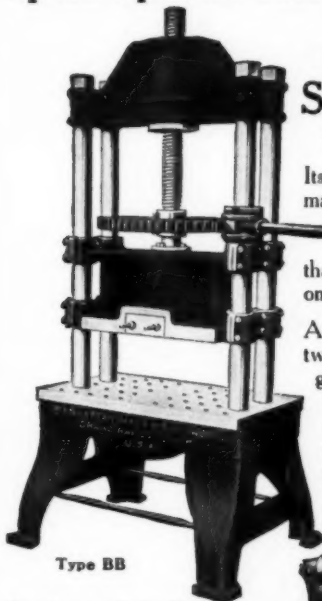
SHELDON MACHINE COMPANY

403 East 29th Street,

CHICAGO, ILL.

Speed Up Your Tool Room Work

With This 1-Man 4-Post Screw Press 80-Ton Pressure!



Type BB

Its superior convenience makes it possible for one man to fit dies in less time than two men can do it on other machines.

Abundant room between bed and ram; gives perfect alignment between punch and die. The four sizes are sensitive, rigid and powerful. Table of Type BB is 20x36".

Surface Grinder

Is accurate, runs silently without chatter. Both feeds have graduated dial. Has all latest adjustments and attachments.

Details and prices on request

JARECKI MACHINE AND TOOL CO.

Successor to Manhattan Machine & Tool Works
Dept. A. GRAND RAPIDS, MICH.



Lourie's Quick Acting Arbor Presses

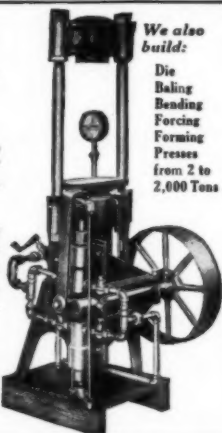
Many Styles and Sizes

The picture shows a small, compact power press for broaching, forming, punching, forcing, etc., etc.

We can produce the press which will do your work well, and at bottom cost, no matter what your requirements may be in this line.

*Put it up to us today—
Glad to make an estimate*

Lourie Mfg. Co.
Springfield, Ill.



**We also
build:**

Die
Baling
Bending
Forcing
Forming
Presses
from 2 to
2,000 Tons



Atlas Arbor Presses

For All Forcing Operations

Illustration shows our No. 55 Power Drive Press, which is adaptable for fast production work and capable of supplying ten tons pressure.

*Write for our Bulletin—
showing 30 different sizes*

Atlas Press Co.

Department B,
Kalamazoo, Michigan



The Old Way

Results in damaged shafts, bushings, pins and other parts, as well as accidents to the workmen.

With Nicholson Arbor Presses

all of these losses and accidents are eliminated, and considerable money is saved. Made in five sizes that take work up to 20" in diameter and 31" high and exerting pressures up to 9,000 lbs. Can make immediate delivery on all sizes and will be glad to send any size on trial.

Nicholson Expanding Mandrels

Save space—A set of nine does the work of several hundred solid mandrels.

Save time—Instantly fit any hole, round or square, from $\frac{1}{2}$ " to 7".

Save labor—No need to caliper a dozen or so solid mandrels, or turn one down to fit certain job.

Write for literature and 30-day trial plan

W. H. Nicholson & Co.
117 Oregon St., Wilkes-Barre, Pa.



Jacobs
Chuck

Thin

A Tapping Attachment power
fectly clean thread clear to the
when the tap strikes the bottom

Such i

(Note

Your work is just as important
and big railroad shops. If you
they are using; you want what

Exactness



Have you seen

THE CHARLES L. JARVIS COMPANY,

*This advertisement is
interests of good Drilling
by the makers of the Ja*



Think of it!

ent powerful enough to drive a tap, cutting a per-
ear to the bottom, and still so sensitive as to stop
the bottom of the hole, without breaking the tap.

uch is the Jarvis

(Note the Jacobs Chuck)

important as the work in the big automobile shops
os. If you do tapping, you want to use the tools
want what they are getting—

ctness

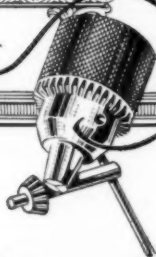
Speed

Economy

you seen the new Jarvis Catalogue?

NY, :: GILDERSLEEVE, CONN.

nt is published in the
Drilling Equipment
the Jacobs Chuck



**"Square Circle" Line Gives
Longer Service
Greater Comfort
Real Satisfaction**

First Stools sold fifteen years ago, are still in use and giving good service. The electrically welded steel rings are as strong in the weld as in any other part. The forged feet have a large floor surface, which slides smoothly over floor. Seats of 1" hardwood, securely fastened inside top ring. Frames or legs are made of angle steel, strong and light. Many styles, with and without backs.

Quality and price are right—write us

**Kalamazoo
Steel Goods Company**

408 E. Ransom St.,

Kalamazoo, Mich.

Style No. 102



**T.H.L. Front Lever
Bench Punch**

Malleable iron body; working parts hardened. Steel shaft and plunger. Die cannot lose alignment with punch. All parts interchangeable. Built for hardest, toughest work.

PRICE \$50

Extra Punches, 20 cents each;
extra dies, 30 cents.

Capacity 13/32" thru 1/4" steel,
11/32" thru 5/16". Punches up
to 1/2". Weight, 70 lbs.

A good buy; can ship promptly

**T. H. LEWTHWAITE
MACHINE CO.**

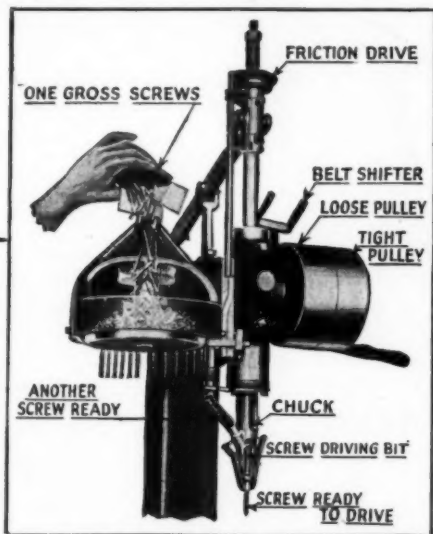
(Est. 1890)

417 E. 31st St., NEW YORK



Screw Driving

At Lowest Cost
With Magazine Feed



Showing the Magazine Feed of the Reynolds Automatic

THE MAGAZINE FEED means that you simply dump a gross or more of screws into the hopper, and the "Reynolds" automatically magazines and drives them with mechanical precision, at a *saving of 65 to 85 per cent* over any other machine or method.

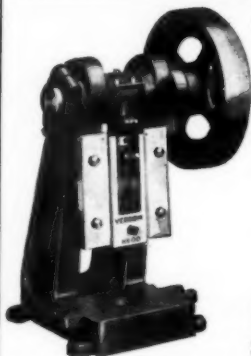
SATISFIED USERS, who employ from one to thirty of these machines, say they pay for themselves three or four times a year.

TELL US the dimensions over all of your work, with the length and gauge of the screws used, and we'll tell you how much we can reduce *your* screw driving costs.

The Reynolds Machine Company

Dept. H. H.,

Massillon, Ohio



Trade **Version** Mark

Is a symbol of
QUALITY

When found on
Power Presses
Arbor Presses
and
Angle Shears

Manufactured by

La Salle
Machine Works

3013 S. La Salle St., Chicago, Ill.

ASK ANY MACHINERY DEALER

Or write for Circular

SOMETHING NEW



Hand Power Presses, Shears, Notchers,
Punches and Dies, Etc.

Write for Booklet

J.F. Kidder Mfg. Co., Burlington, Vt.

Power—

If it's a NAZEL AIR HAMMER

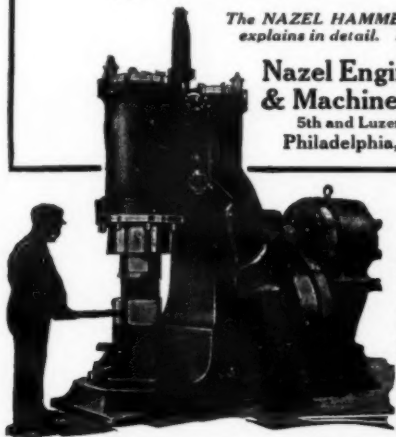
you are sure of more power than it is possible to obtain with a spring hammer, more economy than it is possible to obtain with a steam hammer and greater efficiency than with either.

Users testify that they have been able to handle work under a NAZEL which would have been absolutely impossible under hammer of other types of the same rating.

*The NAZEL HAMMER BOOK
explains in detail. It's free*

Nazel Engineering & Machine Works

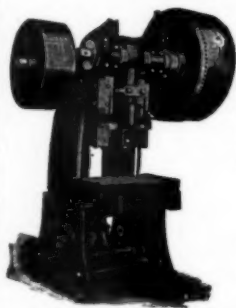
5th and Luzerne Sts.
Philadelphia, Penna.



Built in three types
Six Sizes, Belt or
Motor Driven,
with capacities up
to 7" square for all
kinds of machine,
railroad and gen-
eral forging.

NAZEL HAMMERS Require no storage tanks, independent compressors or piping

A Quality Inclinable Press Backed by a Real Guarantee



A Loshbough - Jordan Press cannot be overloaded while operating within its rated speed. Any shaft or frame broken under these conditions and within year of purchase will be replaced gratis.

Many features for convenience and safety of operator; long, satisfactory service; quality and volume of output excellent.

*Let us tell you about them
—or better, let us send a
press on 30 days' trial.*

**Loshbough - Jordan
Tool & Machine Co.
Elkhart, Ind.**

The Only Difference

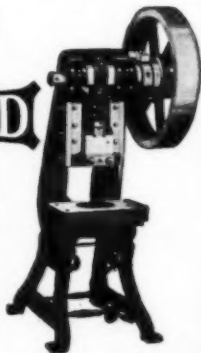
is not just price. The big thing is **service**. An investigation of the merits of

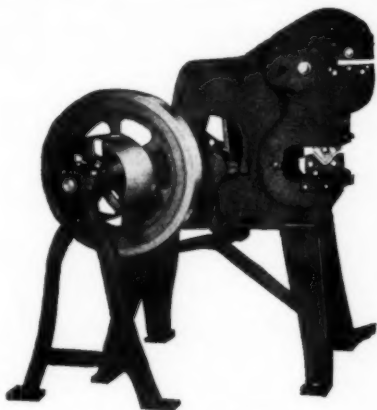
HIGH DUTY
ROCKFORD
PUNCH PRESSES

will give you a new idea of what you should get in punch press service. Definite, dependable reliability under all working conditions.

*Write today for complete
construction details.*

**Rockford Iron Works
ROCKFORD, ILL.**





No. 52—Built in Seven Sizes
BELOIT
Combined Power Punches and Shears
Series 51 to 56

The Beloit Combined Power Punches & Shears offer an unequalled combination of simplicity of design, construction, range of capacity, and moderate initial cost.

Invaluable in any plant for punching, shearing and fabricating steel bars or structurals.

An indispensable equipment for the manufacture of automobile springs and bumpers.

Tell us about your Punching and Shearing requirements. Our line is extensive, and we have a Beloit Machine for your work.

Send for our new catalogue No. 11 which describes the Beloit line of Punches, Shears and Bending Rolls.

Hendley & Whittemore Co.
100 S. State St., ❧ ❧ **BELOIT, WIS.**

Quick, Smooth Cuts Pay

Peter's Saw Saves Material, Time, Labor

Width of cutting wheel is only $\frac{3}{32}$ -inch. Table is swiveled, making it easy to cut at various angles. Nothing better made for economical cutting of high speed steel, drills, reamers, and for all brass, copper, aluminum and flexible tubing. Doesn't draw the temper—saves grinding.

8" Size \$22.50, with C. S.
Splendid for tool room. Cuts all high-speed steel up to $\frac{3}{8}$ " square.

12" Size \$60, with C. S.
Cuts up to $2\frac{1}{4}$ " diameter, round or square, at any angle up to 45 degrees. Ball bearing.

15 Days' Free Trial

Write us or ask your dealer

PETER BROTHERS MFG. CO.
115 Railroad St., Algonquin, Ill.



"QUICKWORK"

(TRADE-NAME REGISTERED THROUGHOUT THE WORLD)

ROTARY SHEARS

MADE IN VARIOUS SIZES AND STYLES

For cutting all gauges of sheet and plate up to 1 inch thick used in building Ships, Boilers, Cars, Tanks and General Plate and Sheet Metal Work. Cut square or beveled edges in straight or irregular shapes, also cut rings and discs, and cut openings without starting in from side of sheet. Leaves the metal flatter than any other Rotary or Short Straight-Bladed Shear. Cuts a clean edge that requires no finishing.

Joggling and flanging rolls can be used interchangeably with the cutters.

Do Long Straight Cutting Faster Than Any Other Shear of Any Kind

One "QUICKWORK" does the work of a number of old style machines
Does it better and from two to ten times quicker

Eliminate Oxy-acetylene Cutting and Plate Planing

WRITE FOR CATALOG NO. 60

THE QUICKWORK COMPANY, St. Marys, Ohio, U. S. A.

Cable Address: "QUICKWORK." All standard codes used.

New York Exhibit: Grand Central Palace.

Agent for British Isles: Oliver Machinery Co., Manchester, England.

For Sawing Solid Bars, Beams, Channels, Angles, Tees, Etc. For Accurate Die Work, Tool Room Work and All Kinds of Shop Sawing, Use the MARVEL METAL BAND SAW No. 8

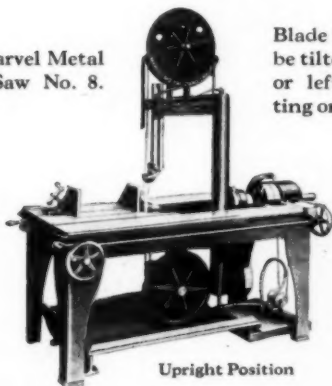
It cuts off square and true, and will also cut on an angle right or left without swinging the bar around the shop.

CAPACITY up to and including **18 INCHES**

Write us today. Put one of these machines to work in your shop.

The Marvel Metal
Band Saw No. 8.

Blade frame can
be tilted to right
or left for cut-
ting on an angle.



Upright Position

ARMSTRONG-BLUM MFG. CO.
341 N. Francisco Ave., CHICAGO, ILL.



Nos. 1, 2 & 5

When All Is Said

and done, you cannot beat our line of tools for cutting sheet, bar or round rods in iron or mild steels.

You can use our line of

Hercules' Shears and Rod Cutters

For cutting card, straw and fibre boards, brass and copper, gold and silver sheets, and hard rubber compositions.

Catalog No. 2 on request.

W. C. & F. C. TUCKER
HARTFORD, CONN.



Plain Shears Nos. 3 & 4



Style "WC"



Style "O"



The Hinge



Style "G"



Style "A"

Gits Gravity and Wire Wick Feed Oilers

Gravity Feed—flushes the bearing.

Wire Wick Feed—gives desired prolonged feed.

Wire Wick—replaces waste or felt.

Made in Standard sizes.



Style "L"

Write for Catalog No. 20

Showing 255 full size illustrations with detail dimensions.

GITS OIL CUPS

Oil cups for every lubricating need. State style and size in which you are interested, and we will send free samples and catalog.

GITS BROS. MFG. CO
1940 SO. KILBOURN AVE., CHICAGO



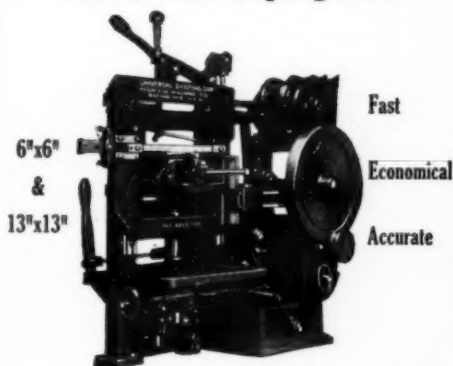
Style "U"



Style "T"

PEERLESS

Universal Shaping Saw



The Latest Development In Hack Saws

REDUCES—Cutting Time, Wasted Material and Blade Expense.

ELIMINATES—Semi-Finishing operations.

ACCURACY and Speed UNEQUALLED
Also

Peerless—HIGH SPEED HACK SAWS
Sturdy—Efficient—Reliable

**Peerless—U. S. A. Power Blades, Duplex Hand
Blades and Peerless Gauging Drill Racks.**

WRITE FOR DETAILS

PEERLESS MACHINE COMPANY

1350 Clark St.,

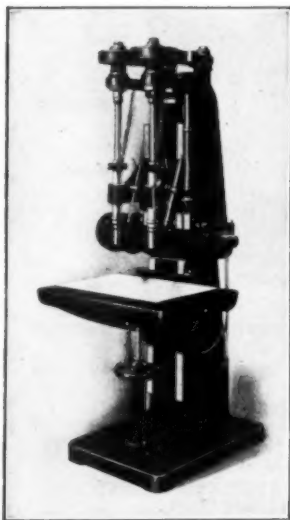
RACINE, WIS.

1 to 8
Spindle

VIKTOR New Type

Drilling Machines

A Revelation in Higher Efficiency



They're different. In fact, they mark a distinctly new departure in drilling machinery, to meet the constant demand for "something better." Here are some special features:

More { Production
Speed changes
Feed changes

Less { Floor space
Upkeep expense
Operative cost

Rugged construction
Enclosed fool-proof
mechanism
Direct motor drive

*You'll want the VIKTOR if you know it
Will you ask us to tell you about it?*

The Henry & Wright Mfg. Co.
Hartford, Conn., U. S. A.

Second-Hand Machinery

Lists of Second-Hand Machinery, either For Sale, Wanted or For Exchange, set in uniform style, will be published under this heading at the rate of **50 cents a line**, across the page, each issue, plus **\$2.50** for name and address. Minimum charge, **\$5.00**. No display permitted in this department.

Write directly to those offering the machines for sale for prices and full descriptions. If what you seek is not listed, use the blank enclosed to make known your wants to the publisher, who will pass them along to all Machine Tool Blue Book advertisers.

FOR SALE BY

Fred C. Dickow Machinery Co., 2105 W. Lake St., Chicago, Ill.	
Grinder, Norton cr. shaft; cost \$4200; like new; no counter. # 385.	Lathe, 2x26 P. & W. tur., 1. new# 375.
Lathe, 21"x9" L. & Davis A-L. 225.	Miller, No. 3 Kempsmith..... 650.
Lathe, 13" Gisholt, like new.. 485.	Miller, Hendey slab, tbl. 33x54 225.
Lathe, 3x36 J. & L. turret, A-1 285.	Miller, No. 6 Steptoe, i. centers 435.
Motors, speed and engine lathes, drills, grinders, hack saws, oil burners, etc.	Planer, 22"x24"x5' Putnam..... 385.

FOR SALE BY

Carbon Steel Company, Ft. 32nd St. & A. V. R. R., Pittsburgh, Pa.
The complete liquidation of the Carbon Steel Company makes available the following tools:

Drill, Pond Machine Co. 6' radial, belt drive.....	500.
Grinders, Espen Lucas 14x13" spindle.....	each, 75.
Lathes, Israel H. Johnson 30"x18", bk. grd., 5-step cone drive, (2).....	ea., 350.
Lathe, Schumacher, Boye & Emmes 18"x8", d. b. g., 3-step cone & c. s..	250.
Lathe, 36"x27" roll lathe, 60" face plate.....	500.
Shears, side cutting, Lewis Foundry, s. grd., 18" blade.....	each, 200.
Shear, plate, R. D. Wood 2"x128" hyd., 26" capacity.	
Shears, Mackintosh steam dr., 30 1/2" thr., 4" str., 24" shear blade, (2).....	ea., 500.
Shear, Mackintosh s. grd., 22" throat, 16" blade, 2" stroke.....	250.

FOR SALE BY

McCoy-Brandt Machinery Co., 210-14 Penn Ave., Pittsburgh, Pa.	
Air compressors, belted, 242 cu. ft.	Miller, vert., No. 0 Bickett.
Air compressors, steam, 909, 2052 and 2200 cu. ft.	Millers, vert. No. 3 B. & S., m. d.
Bolt cutter, 24" Landis, single head.	Millers, Nos. 2, 5C & 6 Becker vert.
Boring mill, 10' Niles, 2 heads.	Motors, 5 & 7 1/2 h. p., a. c.
Boring mills, 42" Bullard New Era.	Nut tappers, 10 spindle, rotary, cap. 1 1/2" nuts.
Bulldozers, Nos. 2, 3, 4, 6 and 12.	Nut tappers, 10 sp., Nat., cap. 1 1/2".
Bulldozers, Nos. 29 & 30 W. W.	Pipe machines, 12", 10", 8", 4" & 2".
Drill, 26" Cincinnati, sliding head.	Planer, 30"x30"x8' Flather, 1 head.
Drills, radial, 5' Prentice, m. d.	Planer, 84"x84"x17' Pond, 3 hds.
Flanging mch., McCabe, cap. 1/2" plate.	Planer, 120"x25' Sellers, 4 hds. m. d.
Forging machines, 2", 3", 4" and 5".	Press, No. 68 Bliss, double acting.
Gear generator, 15" Gleason, m. d.	Press, No. 51 Bliss, s. s., 1 1/2" stroke.
Grinder, Gisholt universal tool.	Punch, dbl. end, 20" throats, 1 1/2"x1".
Grinder, Diamond 36", wet tool.	Rolls, bending, 16"x1/2" Wickes, m. d.
Grinder, 10x32 Ott universal.	Rolls, bending, 12"x5/16" H. & J.
Grinder, 12x48 Cincinnati universal.	Rolls, bending, 10"x14 g. Bertsch.
Grinder, No. 4 Gardner double disc.	Rolls, bending, 10"x1 1/2", horizontal.
Lathes, 14"x 6" Hendey, grd. hd., m. d.	Shaper, 16" American, b. g., crank.
Lathe, 17"x12" LeBlond, g. h., t. a.	Shear, angle, 6"x6" L. & A. dbl., m. d.
Lathe, 19"x14" LeBlond, g. h., turn.	Shear, plate, 126"x1 1/2", m. d.
Lathe, 24"x26" American, m. d.	Shears, alligator, cap. 3" & 4 1/2".
Lathes, 26"x12" Putnam, cone.	Shears, guil., cap. 2 1/2", 2" & 1 1/2".
Lathe, 26"x12" Wickes, q. c. g., new.	Shear, rotary, cap. 1/2", with circ. att.
Lathe, 50"x25" Rement, triple grd.	Shear, rotary bevel, cap. 1/2", m. d.
Millers, horiz. Nos. 3 & 5 Cincinnati.	Turret lathe, 18" Libby, like new.

SECOND-HAND MACHINERY

FOR SALE BY

Cyril J. Bath & Co., 1738 St. Clair Ave., N. E., Cleveland, O.

BOLT CUTTERS AND PIPE MACHINES.

- 1" Acme, style B, with dies, 75%.
- 4" Acme, single head, complete with equipment of dies and lead screws, 75%.
- 2" Jarecki, dies and countershaft, 70%.
- 4" Jarecki No. 44, with dies and c. s., pipe turns, die stationary, 85%.
- 6" Jarecki No. 88, with dies and c. s., pipe turns, die stationary, 85%.

BORING MILLS—VERTICAL.

- 42" Bullard rapid production, rapid traverse, 85%.
- 41" Niles, double swivel head, single pulley drive, 90%.
- 2-60" Bullard, 2-head, standard, 60%.

BORING MILLS—HORIZONTAL.

- 3½" bar Rochester floor boring mill, vertical, motor drive, 80%.

DRAW BENCHES.

- 15,000 lbs. to 25,000 lbs. Waterbury-Farrel, United Engineering and Standard; 20' draw, with 18' extensions for mandrels, heavy cast iron; 80%.

DRILLS—MULTI-SPINDLE.

- 4 spindle 20" Barnes, cone drive, 85%.
- 4 spdl. No. 4 Colburn, arr. for motor dr., all grd., cap. about 3" in steel, 90%.

DRILLS—RADIAL.

- No. 3, 10' Cleveland Punch & Shear wall radial; No. 1, 8' wall radials.

DRILLS—UPRIGHT.

- 20" Mechanics drills,
- 20" same as above.
- 24" Rockford, as above.
- 24" Kokomo hi-speed, sliding head,
- 24" Aurora, sliding head, b. g.
- 30" Aurora, sliding head, 60%.
- 32" Cincinnati, with tap. att., 75%.
- 24" No. 25, Foote-Burt pl. comp. tbl.
- 24" No. 25 Foote-Burt 90%, (3).

HYDRAULIC EQUIPMENT AND PRESSES.

- Hydraulic accumulator, 14"x16".
- Wilson-Snyder horizontal hydraulic, motor driven Hi-pressure Pump; cylinders 3½"x24", 2400 lbs.; driven by 300 h. p., 2200 volt Allis Chalmers motor.
- 125-ton hydraulic press; ram 12", stroke 27", die space R to L 23", F to B 26", columns 6".
- 500-ton hydraulic press; ram 24", stroke 60", die space R to L 29½", F to B 28½", columns 7½".
- 1000-ton hydraulic press; ram 32", stroke 60", die space R to L 40", F to B 43", columns 9½".
- 80-ton hydraulic press; ram 9½", stroke 65", die space R to L 24", F to B 36", columns 3½".
- 50-ton hyd. press; ram 4½", stroke 12", center of ram to back 10½", open sides.
- 1800-ton Kilby hydraulic press; width 34", length 17', 6 pressure cylinders, 12 posts, 6" diameter.

ELECTRICAL EQUIPMENT AND MOTORS.

- No. 9—200 k. v. General Electric generator set, 2300 volt, 60 cycle, 3 phase, to 275 d. c.
- Motors, d. c., 1 to 25 h. p.
- Motors, d. c., ½ to 40 h. p.

TRANSFORMERS.

- 3 General Electric 50 kva type S 2200-230-110 2300-230-115 2400-240-120.
- 3 General Electric 25 kva type S 2200-230-110 2300-230-115 2400-240-120.
- 2 General Electric 20 kw type N Class 400-16000 Alternations Style 10235.
- 2 General Electric 15 kva type H Form K Cycle 60 volts, 2200-190-110-220.
- 3 General Electric 667 kva 23000-2300
- 2 Adams-Bagnall 40 kva 60 cycle, 440-220-110, serial No. 45304 & 45304-544.
- 1 Adams-Bagnall 5 kva 60 cycle, 460-220-110, serial No. 41029.

BULLDOZERS AND FORGING MACHINES.

- No. 24 Williams & W. bulldozer.
- 1" Ajax 75%, (3).
- 3½" Ajax iron body 85%.
- 250-ton Mesta steam hydraulic, 85%.

HAMMERS.

- 600 lb. Merrill board drop, 95%.
- 850 lb. Bell steam forging, 85%.
- No. 8 Beaudry, power, arranged for motor drive, 80%.
- No. 6 Nazel air hammer; frame cracked but patched in workmanlike manner and in good operating cond., arranged for motor drive.

(Continued on next two pages)

SECOND-HAND MACHINERY

Cyril J. Bath & Co.—Continued

GRINDERS.

No. 3 Brown & Sharpe univ., 70%.
10x38" Modern univ., and parts, 70%.
72" Diamond surface grinder, 85%.
No. 75 Heald internal, with extra
spindles and c/s, 85%.
Washburn drill grinder, 70%.

No. 4 Gardner motor driven disc
grinder, with discs, cup, wheel and
press; 10 h. p. motor, 1200 r. p. m.,
220 volt, 60 cycle, 3 phase, a. c.
Yankee drill grinder.

LATHES.

14"x 6' Hendey tool room, & equip.
12"x 6' South Bend, 90%.
12"x 5' Hendey tool room, & equip.
16"x 6' Hendey, pan bed, 85%.
16"x 8' Lodge & Shipley.
16"x9' Lehmann.
16"x 9' Chard with 2 chucks fitted.
18"x 8' Lodge & Shipley, 70%, (4).
18"x10' American, 80%.

19"x 8' LeBlond friction hd., 60%.
24"x12' Reed, belt feed, loose change
gears 60%.
28"x14' Bridgeford geared hd.; 85%.
30"x16' Prentice geared head, motor
driven, 90%.
32"x18' Schumacher, cone head, 60%.
48"x26' Bridgeford geared head, 9
speeds in head, taper att., 85%.

MILLING MACHINES.

Style "B" Gooley & Edlund, Briggs,
Lincoln type, mfg. gear fd., 80%, (2).
20"x1'x18" Oesterlein plain, 50%.
No. 8 Steptoe plain univ. heads, 90%.
No. 9 Rockford, power feed, arbor,
vise, new.
No. 1 Rockford pl. bk. geared, 90%.
No. 2 Cleveland full univ., single
pulley drive, with heads, braces,
vise and arbor, 85%.

No. 2 Brown & Sharpe vertical, 50%.
No. 2-A Brown & Sharpe univ., 75%.
No. 3 Brown & S. pl., cone dr., 65%.
No. 3-B B. & S. hvy. sgl. pulley dr.
No. 5 Becker vertical, old style, no
countershaft, 60%.
No. 13 Brown & S., Lincoln type.
30"x10" Newton Slab Miller, ar-
ranged for motor drive.

PLANERS.

22"x24"x37" Fitchburg.
24"x24"x6" Liberty, 1 head, new.
30"x30"x8" Gray, single head, 80%.
30"x30"x8" Gray, single head, 70%.
48"x48"x16" Gray, 4 hds., mtr. dr., 95%.

36"x36"x12' Bickett, 3 heads, with
d. c. and variable speed reversing
motor 90%.
60"x48"x16' Pond, 2 hds., old style,
light pattern, fair condition.

PRESSES AND BRAKES

59" Toledo straight side, single crank, tie rod frame, bolster 40"x40", stroke
8" friction clutch, belt motor drive.
DP-56 Ferracute straight side or trimming press; geared, arranged for side
shear which has been removed and could be replaced. Stroke 5", die space
18", weight about 15,000 lbs.
No. 6 Niagara, 3" stroke, 9" die space; frame has been welded; arranged for
motor drive.
Double crank Niagara, light, 5" stroke, 9" die space, 48" between housing.
16" Ohl bending brake, plunger type, for 16 gauge material, good condition.
8' 6" Ohl power brake, 85%.

PUNCHES AND SHEARS.

No. 2 Hilles & Jones horiz. punch; 8" throat, cap. 4"x1", belt drive, 70%.
42" gap American ship punch, capacity 1"x1", 70%.
54" gap American ship punch, capacity 1"x1", 70%.
60" Stoll geared shear, capacity about 4".

SLOTTERS.

12" Sellers, 75%.
10" Newton, with countershaft, 75%.
16"-18" Dill; adjusting ram, arranged
for motor drive.

RIVETER.

Hanna I-beam frame; 18" reach, 12" gap, 10" cylinder

SAWS.

No. 3 Ajax hot saw and burring
machine, complete, 80%.
36" Klemm metal band saw, 75%.
6" used Racine hack saw, 75%.

SHAPERS.

15" Potter & Johnston, tilting table.
16" Gould & E., b. g. crank.
20" American, crank, belt.
21" Averbek, no countershaft, 75%.
24" Cincinnati, arranged for motor
drive, no countershaft, 75%.
24" Walcott, crank, back geared, 90%.

(Continued on next page)

SECOND-HAND MACHINERY

FOR SALE BY

Cyril J. Bath & Co., 1738 St. Clair Ave., N. E., Cleveland, O.

(Continued from Preceding Page)

TINNERS' TOOLS.

48" tin rolls, power driven, 90%.

39" Crimper.

30" Squaring shear.

48" Folder.

TURRET LATHES AND SCREW MACHINES.

2"x24" Warner & Swasey.

3"x38" Jones & Lamson.

21" Gisholt, standard model, 70%.

24" Gisholt, late model, 85%.

WOODWORKING TOOLS.

Band saw, 36" Fay & Egan, with tilting table.

Emery wheel, No. 3.

Pattern lathe, Fay & Egan 12".

Planer, Fay & Egan, pony.

Post drill, 15" Silver.

Ripsaw, Fay & Egan.

MISCELLANEOUS.

Centering machine, 3" Whiton, 75%.

Face plate jaws for vertical boring mill, (4).

Gas engine, 5 h. p. Economy.

Gear cutter, 36" Gould & Eberhardt.

Magnetic chucks, (2).

FOR SALE BY

McDonald Machinery Co., 1531-33 N. Broadway, St. Louis, Mo.

BOILER EQUIPMENT.

Long & A. No. 0 angle shear, 4x4x4.

Felber combination punch & slitting shear, 1" in 1".

Scully hvy. punch, 1" in 1", thrt. 20".

H. & J. No. 0 punch, 4" in 4", 14" thrt.

Badger punch, 36" throat, 3" in 3".

Miscellaneous equipment, screw punches, taps, flues, hoists, etc.

MISCELLANEOUS.

Brakes, 6' 8", & 10' hand.

Lathes, 40-9" to 24" South Bend;

26"x14" Hamilton, q. c. g.

Milling mches., Milwaukee No. 1B.

Hendey No. 2 universal, American

No. 1 1/2 univ.; Becker model SD

vert., rotary table, wt. 16,000 lbs.;

20 plain millers; Cinti. No. 3 univ.

Planers, 36"x36"x23" Sellers, 2 hds.;

42"x42"x16" Pond, 2 heads.

Presses, No. 2 Rockford and Consol-

idated, No. 19 Bliss, No. 40 Swaine.

Radial drill, 5" American.

Screw mchs., B. & S. No. 00, Foster

No. 3 hand, 2 Woods No. 2 tilt, tur.

Shapers, new 12", 14", 16" & 20";

36" Fellows, gear; used 16" & 24".

Sheet metal tools, Yoder and Pexto.

Slitting shear, No. 10 Quickwork.

Welders, butt and spot.

FOR SALE BY

E. L. Essley Machinery Co., 551-557 Washington Blvd., Chicago, Ill.

Branch Store, 78-80 W. Water St., Milwaukee, Wis.

Bolt cutter, 1 1/2" Acme, double head.

Bolt cutter, 4" Landis, single head.

Boring & turning mill, 34" Colburn.

Drill, mult., D-31 Fox, with rect. hd.

Drill, radial, 4' Fossdick, late type.

Gear hobber, No. 3 Schuchart & S.

Grinder, plain, 142x50" Norton.

Grinder, surface, No. 2 Abrasive.

Grinder, hole, No. 6 Bryant.

Hammer, st. drop, 800 lb. Massillon.

Keyseater, No. 3 Baker, 4"x24" cap.

Lathe, 36"x14" Springfield hvy. pat.

Miller, plain, No. 5 Cincinnati.

Miller, vertical, No. 3 Cincinnati.

Miller, thread, 6"x80" Pratt & W.

Planer, spiral gd., 30"x30"x10" Gray.

Planer, plate, 16" No. 3 Niles.

Press, No. 18 o. b. i. Bliss.

Press, No. 512 Niagara, strt. side.

Press, No. 3 Bliss, solid back, plain.

Press, No. 4 Bliss geared, o. b. i.

Press, No. 90-E Toledo double cr.,

plain straight side.

Punch, No. 9-C Hendley & Whitte-

more, double end.

Punch, No. 59 Hendley & Whitte-

more, single end.

Riveter, stake, No. 6 Whiting 60"

throat.

Screw mchs., 24"x7" multi-sp. auto.

Gridley, model F, about 80% new.

Shear, square, No. 336 Niagara, 14 ga.

Shear, sq., No. 416-J Toledo, 16 ga.

Shear, gate, No. 64 Hilles & J.

Sh., splitting, No. 134 Lennox 8'-4".

Slitter, gang, 43" bet. housings, 18 ga.

Slotter, 26" Niles, gd.

Turret lathes, 18" and 26" Libby.

No matter what territory you are in, our prices will make it pay—you'll save.

SECOND-HAND MACHINERY

FOR SALE BY

A. F. Strafer,

30 Church St., New York City

AUTOMATIC SCREW MACHINES.

Cleveland model A, 14", 2", 24", 34",
44", 6", 64".
National Acme Nos. 512, 52, 53, 54.

Fay auto., with air chuck.
New Britain No. 23.
Gridley, single spindle, 34".

BORING MILLS, VERTICAL AND HORIZONTAL.

80" Pond vert., heavy, belt drive.
53" Niles-B.-P. rapid trav., a. c., m. d.
30" King turret head.
No. 2 Rochester, 3" bar, s. p. d.

60" Niles-B.-P., vertical, s. p. d.
60" Bullard vertical, belt drive.
No. 3 Universal horizontal, s. p. d.
Barrett cylinder Nos. 1 & 2.

CRANES AND HOISTS.

50 t., 86' span P. & H., 220 v., d. c.
5 t. Northern, 57', 45', 37' spans, d. c.

10 t., 70' span Milwaukee, 220, d. c.
5-t. North. trolley hoist, 3 p., 60 c.

DRILLS, UPRIGHT AND RADIAL.

6', 5', 4' Reed Prentice, s. p. d.
34" Morris, s. p. d., latest type.
25" W. F. & J. Barnes, b. g., p. f.

44" Mueller, t. a., arr. motor drive.
No. 310 Baker heavy duty.
24" Cincinnati Bickford, latest.

GEAR CUTTERS.

45"x10" Gould & Eberhardt
Nos. 2 & 3 Barber Colman hobbers.

26" No. 3 Brown & Sharpe.
No. 24 Bilton automatic.

GRINDERS, SURFACE, HOLE AND CUTTER.

No. 16 Blanchard vert. surface, a. c.
motor drive, 3 ph., 60 c., high serial
numbers (3).

6"x24" Norton plain.
12"x48" Modern plain, new.
No. 2 Brown & Sharpe surface.

No. 14 Pratt & Whitney vert. sur.
No. 60 Heald cylinder, complete.
10"x38" Norton plain.
No. 10A Bryant hole.

10"x24" Landis plain, self-c.
Abrasive Material Co., surface.
No. 1 LeBlond cutter and tool.

KEYSEATERS.

No. 7 Burr, cap. 14", routing attach.

No. 1 Baker, 12" stroke, 14" cap.

LATHES, ENGINE.

44"x24" Niles-P.-B., t. g., belt drive.
32"x12" Mueller, low price.
24"-32"x16" Lodge & Shipley, q. c.
50" Henley pulley lathe.
Hendey tool room, 14", 16", 18".

36"x14" Harrington, low price.
28"x21" Flather, q. c. & taper.
22"x12" Lodge & Shipley, g. h., s. p. d.
20"x10" American, q. c., d. b. g.
18"x 8" American, q. c.

LATHES, TURRET.

34"x36" Acme flat, chuck equip.
34"x36" J. & L. 2 spindle.
24" Gisholt, 64" hole thru spindle.

24"x26" Acme flat, bar equip.
24"x26" J. & L., chuck & bar.
18" Libby, s. p. d., equipment.

MILLING MACHINES.

No. 4-H Brown & Sharpe plain.
No. 3 Cincinnati h. p. vertical.
No. 2 Rockford universal.

No. 4 Cincinnati high power plain.
Ohio 34", 12", 19" universal.
No. 13 Brown & Sharpe, mig. type.

PLANERS.

60"x60"x12" N.-B.-P., elec. rev. dr.
45"x48"x30" Putnam, 4 h., b. d.

48"x48"x14" Patch, 4 h., m. d.
28"x28"x10" American.

LARGE TOGGLE DRAWING PRESSES.

No. 1694 Toledo, strokes 42" & 37".
SA-184 Ferracute, strokes 20" & 84".

SA-175 Ferracute, 500 ton.
SA-53 Ferracute, 1500 ton.

PUNCHES AND SHEARS.

Hillis & J. gate, cap. 9'x1".
H. & J. No. 5, 60" t., a. c. motor d.
No. 7 Ryerson, 72" t., 14'x1" cap.

Hillis & J. double angle, 6x6x1.
H. & J. No. 6, 32" t., belt d.
H. & J. No. 4, double, a. c., m. d.

SHAPERS.

25" Smith & Mills b. g. crank.
16" Milwaukee b. g. crank.

24" Potter & J. universal.
16" Smith & Mills.

MISCELLANEOUS PLANT EQUIPMENT.

Air drills, \$25.
Air hammers, \$15.
Blower, pressure, No. 3 Root, 20r. p. m.
Electric welding set, G. E., a. c.
Gas engine, 15 h. p. Novo 2 c., new.
Gas furnace, No. 5 American.

Generator set, 200 k. w. cross com-
pound, d. c.
Turbo generator set, 300 k. w., 3 ph.,
60 cycle.
Turbo generator set, 200 k. w., d. c.
Upsetter, Ajax, capacity 14.

SECOND-HAND MACHINERY

FOR SALE BY

Eastern Machinery Co., 408 E. Pearl St., Cincinnati, Ohio
MILLING MACHINES.

No. 2 Hendey Norton universal, cone type, complete.
 No. 2 Cincinnati universal, cone type, complete.
 No. 12 Brainerd universal, cone type, complete.
 No. 2 Kempsmith universal cone type, complete.
 No. 2 R. K. LeBlond pl., cone type.

No. 3-B Brown & Sharpe plain, single pulley.
 No. 3-B Kearney & Trecker (Milwaukee) plain, single pulley.
 No. 0 Cincinnati plain, cone type.
 No. 3 Kempsmith plain, cone pulley.
 No. 2 Cincinnati plain, cone pulley.
 No. 3 Brown & S. vert., agl. pulley.
 No. 5-C Becker vert., cone pulley.

LATHES.

12"x 6" Hendey, q. c., with taper.
 14"x 6" Lodge & Shipley, quick change, with taper.
 16"x 6" Greaves & K., tool room, taper, relieving and collet attach.
 16"x 8" Hendey, q. c., with taper.
 16"x 6" American Tool Works, quick change, all geared head.
 18"x 8" American Tool Wks., q. c.
 18"x 10" Greaves & Klusman, quick change.
 19"x 10" R. K. LeBlond, quick chg., virtually new.

20"x 12" R. K. LeBlond, qck. chg.
 20"x 14" R. K. LeBlond stan. chg. gr.
 22"x 10" Hamilton semi-quick change gear, with taper.
 24" raised to 30"x 14" R. R. LeBlond standard change lathe.
 25"x 12" R. K. LeBlond, qk. change.
 27"x 18" R. K. LeBlond, qk. change.
 30"x 16" Houston, Standwood & Gamble, quick change.
 36"x 22" Putnam triple geared, semi-quick change.
 42"x 20" Pond, standard change gear.

DRILLING MACHINES.

5' American Tool Wks. plain radial, gear box drive.
 4' Western plain radial, gr. box dr.
 3' American Tool Wks. plain radial, cone pulley drive.
 2 1/2' Cincinnati-Bickford plain radial, gear box drive.
 4' Almond folding arm high-speed ball bearing sensitive radial.
 26" Cincinnati - Bickford upright, gear box drive and tapping.
 20" Prentice Bros. plain drill press.

14" Avey high speed single pulley ball bearing drills.
 14" Allen high speed two-spindle ball bearing drills.
 20" Barnes 4-spd. gang, with auto approach and return feed.
 24" Aurora upright, sliding head.
 26" Aurora upright, slid. hd., with tap.
 No. 25 Foote-Burt heavy duty vertical, gear box.
 No. 2 Colburn heavy duty vertical, gear box.

RADIAL DRILLS.

5' Niles-Bement-Pond full universal, gear box drive.

MISCELLANEOUS.

Air compressor, 12"x 10" Ingersoll-Rand class E-R-1, with slip ring, 3 phase, a. c. motor and starter.

Bolt cutter, 1" Acme, single spindle, quick opening die head.
 Bolt cutter, 1 1/2" Landis, single spindle, quick opening die head.
 Boring mill, 42" Bridgeport vertical, turret head on rail.
 Boring mill, No. 21 Lucas horiz., gear box drive, 2 1/2" bar.
 Brake, hand, 12" Dries & Krump, steel.
 Grinder, cylinder, No. 60 Heald, complete equipment.
 Grinder, internal, No. 70 Heald.
 Grinder, plain, 10"x 50" Norton.
 Grinder, univ. tool & cutter, No. 3 Oakley.
 Grinder, univ. tool & cutter, No. 1 1/2 Cincinnati.
 Hammer, power, 90 lb. Williams-White, belt driven.
 Planer, 30"x 30"x 12" Gray, 1 head on rail, belt drive.
 Planer, 36"x 36"x 12" American, belt drive, with 2 heads.
 Press, power, No. 5 Toledo, open back inclinable.
 Press, power, No. 3 1/2 Toledo, o. b. i., fly wheel drive.
 Press, power, No. 5-A Willard, o. b. i., fly wheel drive.
 Press, power, forcing, 15-ton Lucas, belt drive.
 Punch & shear, No. 17 Williams-White, double end, 25" throat.
 Shaper, 16" Barker, back geared crank, like new.
 Shaper, 24" Cincinnati back geared crank.
 Shear, No. 1 Quickwork, 60" throat, belt drive, cap. 14 gauge and lighter.
 Shear, 42" Niagara power square, belt drive.

SECOND-HAND MACHINERY

Eastern Machinery Co.—Continued.

MISCELLANEOUS—CONTINUED.

Slotter, 24" Betts, cone pulley drive.
Welder, Federal Electric, cap. 2 pieces of $\frac{1}{2}$ " metal.
Welder, butt, National Electric, up to $\frac{3}{4}$ " diameter.
A large assortment of practically new Leather Belting, Line Shafting, Pulleys,
Hangers and small tools of all kinds. Your inquiries respectfully solicited.
Our prices save you money.

FOR SALE BY

Herman L. Winterer,

943-53 N. Front St., Philadelphia, Pa.

LATHES.

43"x17'4" Bement-Miles.	21"x8' LeBlond.
42"x16" Niles taper att.	20"x8'6" Walcott, d. b. g., q. c. g., (2).
37"x14" Johnson d. b. g., q. c. f., t. a.	20"x8' Whitcomb Blaisdell, q. c. g.
32"x12" Pittsburgh, heavy duty, q. c. g.	19"x10' Draper, patent head.
27"x12" Bullard.	18"x8' Davis, q. c., d. b. g.
26"x11" Wickes, q. c. g.	18"x7' Chard, d. b. g., semi q. c. g.
28"x10" Niles, q. c. g.,	18"x6' to 8' lathes, (6).
25"x14" Hendey, q. c. g., taper attach-	16"x8' Greaves & Klusman, b. g., t. a.
ment, oil pan, (2).	And many others.
24"x14" Porter.	

TURRET LATHES.

3"x28" Pond, triangle.	No. 3 Kempsmith.
3"x36" Pratt & Whitney, hollow hex.	14"x6' Warner & Swasey.
20" Acme flat, 24" h. s. motor drive.	16"x6' Johnson, back grd.
30"x7' 6" Pratt & Whitney, back grd.	No. 3 Bardons & Oliver back grd.
20"x7' Bridgeport, 24" h. s.	14"x5' 3" Pratt & Whitney, (2).
19"x7' Fay & Scott, back grd.	No. 3 Foster Kimball.
No. 22½ Garvin Monitor.	

DRILL PRESSES.

42" Gang radial, s. p. speed box.	26" No. 3 Avey high speed, (2).
40" Barnes horizontal radials, (2).	14" 6-spindle Allen sensitive.
36" Bickford radial, circular base,	Henry & Wright sensitive.
motor driven.	Plain drills, all sizes.
28" Rockford, q. c. g. feed (2).	Drill presses, assorted sizes.

MILLING MACHINES.

38"x6" Ingersoll horizontal slab.	No. 3 Hendey-Norton, q. c. g.
No. 5 Cincinnati, table 9"x50½".	No. 0V Brown & Sharpe plain, (2).
No. 2 Pratt & Whitney die sinker.	No. 5-C Becker vert., rotary table.
No. 15 Garvin, table 12"x42".	No. 5-B Becker vert., table 14"x43.
No. 3 Becker Brainerd, table 12"x40".	No. 7-H Lincoln type Becker miller.

PLANERS AND SHAPERS.

12"x10"x25" Sellers planer, 4 heads.	48" Morton draw-cut shaper.
30"x30"x8" Hewes & Phillips planer.	39" Pedrick & Ayer, open side.
30"x30"x8" Putnam planer.	28" Cincinnati.
26½"x26"x6" Hendey planer.	14" Warren shaper.
24"x24"x6" Sellers planer.	

MISCELLANEOUS.

Band metal saw, 6"x6 Napier.	Hammer, 40 lb. Bradley, helve.
Boring mill, car wheel, 60" Newton.	Hammer, 60 lb. Hotchkiss.
Boring mill, 36" Baush & Harris	Hammers, 60 lb. Bellefonte upright; 2
vertical, double head.	Hammer, 500 lb. Merrill belt drop.
Boring, drilling and milling machine,	Hammer, 1000 lb. Merrill board drop.
17½" Bement Niles horizontal.	Hammer, 1250 lb. Bell-steam.
Centering machine, 4" Whiton.	Keyseaters, 15" stroke Morton, (2).
Grinder, 13½"x5" Landis universal.	Punch presses, all sizes, (55).
Grinder, No. 1 Norton universal.	Punch & shear, Industrial Wks. d. e.,
Grinder, disc, No. 17 Besly.	capacity 1½" in 1½", squaring 1½"x6".
Grinder, disc, No. 1 Besly.	Slotter, 14" Niles.
Hammer, 15 lb. Bradley helve.	Tooth round'g mch., Schuchardt & S.
Hammer, 25 lb. Little Giant, m. d.	

Large assortment of General Machinery. Send for Complete List.

SECOND-HAND MACHINERY

FOR SALE BY

The Patterson Tool & Supply Co.,

Dayton, Ohio

Drill press, used 22" Barnes... \$ 125.	Grinder, new No.3 Ohio t. & c. \$ 700.
Drill, used 19" W. & R., 2-sp... 75.	Lathe, new 16"x8" Monarch... 400.
Drill, bench, new No. 1 Burke... 100.	Magnetic chuck, used Heald... 75.
Grinder, new No.2 Ohio t. & c. 500.	Mill, hand, used No.6 Whitney 50.
Grinder, new 16" W. & M., w.e. 75.	Screw mch., new No.140 Wells. 275.

FOR SALE BY

The H. A. Smith Machinery Co.,

Syracuse, N. Y.

BALANCING MACHINE.

Rockford style B, motor driven.

BORING MILLS.

Gisholt 36" vertical, with combination chuck in table.

Gisholt 42" vertical, 2 swivel heads.

Gisholt horizontal boring, drilling and milling machine, 4" bar.

Niles horizontal boring, drilling and milling machine, 4 1/2" bar, bed plate 10'x12', and with 44" circular chucking table.

DRILL PRESSES.

Allen 4-spindle ball bearing.

Allen 6-spindle ball bearing.

Barr 6-spindle, 4" capacity.

Snyder 30", bk. grd., sliding head.

Barnes 34", bk. grd., sliding head.

Snyder 36", b.g., slid. hd., tap. attach.

RADIAL DRILLS.

Fosdick 3 1/2" heavy duty, round column.

Niles 2 1/2" universal.

Fosdick 5" universal, motor drive.

GEAR CUTTERS.

26" Brown & Sharpe No. 3.

48" Gould & Eberhardt.

Fellows No. 62 gear shaper, motor drive.

GRINDERS.

No. 10 Brown & Sharpe plain.

12x36 Modern, new.

10x72 Landis plain.

12x40 Modern plain.

16x52 Landis plain.

UNIVERSAL TOOL AND CUTTER GRINDERS.

Bath No. 2 1/2 universal.

Wells No. 150 universal.

Brown & Sharpe No. 3 universal.

INTERNAL GRINDERS.

Bryant No. 10-A.

Brown & Sharpe No. 23.

Madison Gisholt automobile cylinder grinder.

KEYSEATING MACHINES.

Davis No. 2.

Baker Brothers No. 0.

LATHES.

12x6 Seneca Falls, with pan & taper.

12x6 Seneca Falls style E.

14x24x54" bed Barnes, gap.

21x12 Porter, with increase swing attachment.

36x16 Pond, triple geared.

PORTER-CABLE LATHES.

Porter-Cable, with complete piston turning equipment.

MILLING MACHINES.

No. 1-B Kearney & Trecker plain.

Kearney & Trecker No. 3 plain.

No. 3-B Kearney & Trecker univ.

No. 13-B Brown & S. production.

Cincinnati No. 3 plain.

Cincinnati No. 4 plain.

No. 3 B. & S. vert., all power fds.

Brown & Sharpe No. 5 vertical.

PLANERS.

24"x24"x 6" Chandler.

26"x26"x 8" Niles.

26"x26"x10" Whitcomb.

36"x36"x24" Pond, 4 heads.

74"x34"x24" Pond, 4 heads.

AUTOMATIC SCREW MACHINES.

No. 0G Brown & Sharpe automatic.

No. 0G Brown & Sharpe automatic.

Cleveland 4 1/2" automatic.

Cleveland 4 1/2" automatic.

21" Gisholt turret lathes, \$300 to \$500, according to condition, (3).

No. 2-A W. & S. hollow hex. turret lathes, with chucking equipment.

MISCELLANEOUS.

Cutting-off machine, Hurlbut-Rogers, 4".

Die slotting machine, Garvin.

Grinder, Sellers auto. twist drill.

Tapping machine, Garvin No. 2.

Tapping machine, Garvin No. 2X.

SECOND-HAND MACHINERY

FOR SALE BY

Russell Machine Co., 25th St. & A. V. R. R., Pittsburgh, Pa.
LATHES.

50"x49'6" Johnson, triple geared.
50"x25' Putnam, geared head.
30"x13' New Haven.
28"x14' Putnam, h. s.
26"x12' Pittsburgh, dbl. b. g.
26"x20' 6" Putnam, b. g., c. r.
26"x10' 6" Walcott, q. c. g.
24"x16' 6" Johnson lathe.
24"x14' Rahn-Mayer-Carpenter.
19"x10' LeBlond, motor drive.
19"x 6' Bullard, c. r., b. g.
18"x 8' Mueller, q. c. g.

18"x 8' Sidney, q. c. g., d. b. g.
16"x 6' Blaiadell, h. s.
16"x 6' Cleveland, q. c. g., new.
16"x 6' South Bend, h. s., t. a.
15"x 8' Schellenbach, d. b. g., h. s.
16"x 5' Fox turret with chasing bar.
3"x36" J. & L. flat turret.
24"x24" J. & L. flat turret.
24"x 6' Gisholt tur., 64" h.s., m.d.
1"x 7" Acme screw machine.
19"x 4' Blount speed lathe.
12"x48" speed lathe.

PLANERS AND SHAPERS.

24"x24"x 8' Chandler planer.
30"x30"x12' Detrick-H. openside.
32"x32"x 8' New Haven, 1 head.
48"x48"x16' 2" Cleveland open side planer, 1 side & 2 rail heads.

48"x48"x22' Pond planer, 4 heads.
120"x120"x25' Sellers planer, 4 heads.
24" Kelly b. g. cr. shaper.
24" Queen City, b.g. cr. shaper, m.d.
32" Smith-Mills b. g. crank.

DRILLS AND BORING MILLS.

20" Champion, new, pl. w. & l.
36" Prentice, sliding head.
40" New Haven, b. g. drill.
4' Dreses, 4' Bickford radial.
64" & 8' Pond radial drills.
24" Cavedy-Otto post radial.
1" Champion post drill.
30" W. & S. boring mill.
36" Bridgeport boring mill.

42" & 50" Bullard bor. m., 2 heads.
42" Bullard New Era boring mill.
36", 51", 90", 10' Niles bor. mills.
84" Pond boring mill.
Beaman-Smith No. 5 post type hor. boring & drilling machine, spindle 8" dia., floor plate 12"x16".
Beaman & Smith post type hor. boring mill, 34" bar, m. d.

PUNCHES, SHEARS,

Fischer s. e. punch & shear, 1"x1".
King Bridge Co. s. e. punch, 30" thr.
50" throat Reade sgl. end punch and shear; massive construction.
L. & A. punch & shs. Nos. 6, 7.
Mahoning punch & shear, 32" thr.
Plunger type punch & shear, 9" thr.; six 1/2" holes thru 3/4" plate and 6x3/4" at one operation.
Danville portable alligator shear 14" capacity.
Lewis alligator shear, cap. 14".
Carlin alligator shear, 14" capacity.
Carlin alligator shear, 24", m. d.
Canton alligator shear, 3", m. d.

PRESSES AND ROLLS.

Garrison plate shear, cap. 3"x81", m.d.
Waterbury-Farrel rotary sh., 14" thr.
Hilles & Jones gear shear, capacity 84x1/2", motor drive.
Pusey-Jones guillotine shear, 3" cap.
Niagara pr. sq. shears, 36".
Toledo No. 52 geared arch press.
No. 56 dbl. housing knuckle press.
Double acting drawing press, 34" stroke.
Stiles No. 3 inclinable press.
Baird No. 1 foot power presses.
Baird Nos. 3 & 1 open back presses.
Z. & H. inc. press.
Straight-side punch press, 1/2" str.

MISCELLANEOUS.

Air compressors: Chicago 19x12x14; Chicago 9"x11".
Blowers, Buffalo No. 8 vol.; Sturtevant No. 8.
Bulldozers, W.-W. Nos. 2 & 4.
Cold saw, Wagner, size 18 type 3.
Cranes, portable 2 & 2 1/2 ton.
Engine, gas, 15 h. p. Fenner.
Forge, No. 41 Champion new.
Gear cutters, No. 13 B. & S.
Gear hobber, 160"x32", for high speed gears; will cut spur, worm and spiral gears; m. d.
Grinder, Ott 6"x6" internal.
Grinder, Ott 5"x18" plain.
Grinder, Landis No. 3 universal.
Grinders, Plymouth Nos. 17, 20.
Grinders, Norton & W.-P. 24"x4".
Hammers, 25, 60 & 80 lb. Bradley.

Hammers: 1500 lb. Bement st. dr.; 800, 2000 lb. B-M st. forging.
Hammer, W. & W. 55 lb. upright.
Millers: Cincinnati No. 2 high duty universal; Cin'ti No. 3-S univ.; Hendey-Norton No. 3 universal; B. & S. No. 2-B, Cincinnati No. 3, and Garvin No. 12 plain; Briggs high duty production; Cincinnati No. 2 vertical.
Motors, Fairbanks-Morse, 20 h. p., 3 phase, 60 cycle; Westinghouse 10 h. p., 220 v., 3 ph., a. c., 60 cycle.
Pipe machines, Merrill 4".
Pipe machines, Eaton-Cole-Burnham 4" & 8"; B. & K. 3 1/2" to 10".
Saw, Sterling blade, 6"x6".
Slotter, Niles 15".
Upsetters, Acme, 1/2" steel bed.

SECOND-HAND MACHINERY

FOR SALE BY

Marr-Galbreath Machinery Co.,

Bolt cutters, Acme, 1½", 2", 3" & 6".
 Bolt cutter, 1½" Acme, triple head.
 Boring mill, No. 5 B. & S., post.
 Boring mill, Betts horiz., 3 & 4" bars.
 Boring mill, 9½" Niles, 2 heads.
 Boring mill, vertical, 72" Betts.
 Boring mill, 54" Bullard "Maxi-mill," m. d.
 Boring mill, 52 & 42" King, sgl. pul.
 Boring mill, 46" sgl. hd., light \$175.
 Brake, 8" Chicago, for 18 gauge.
 Brake or press, 10" Robinson, toggle.
 Bulldozers, Nos. 1, 2, 3, 4, 5, 26 & 27.
 Bulldozers, Nos. 6, 8 & 9 W. W.
 Compressor, 1170 cu. ft. Chicago, belt or m. d. (A-1).
 Compressor, 14"x10"x12", Ingersoll.
 Drills, radial, 3" Bickford plain, t. a.
 Drill, radial, 3" Prentice plain.
 Drill, radial, 2½" Taylor-Fenn, sens.
 Drills, 36" Hoefler; 20" Barnes, b. g.
 Drill, 28" Barnes, sliding hd., b. g.
 Drills, No. 2 Colburn, mtg. type, (4).
 Drill, Allen, 20" sensitive, 4-spld.
 Drill, heavy duty, 34" Foote-Burt.
 Exhauster, No. 8 Buffalo.
 Exhausters, No. 28 Sturtevant, dbl.
 Forging mche., 1½" Acme, side shear.
 Gear hubber, No. 12 Barber Colman.
 Gear & pinion cutter, No. 2 Sloan & Chace.
 Grinder, No. 2 Stenotype, double end, with 2 magnetic chucks 7"x9".
 Grinder, Yankee drill, "A", dbl. end.
 Hack saws, 4", 6" & 8", belted or m. d.
 Hammers, 80 & 100 lb. Bradley helve.
 Hammer, 600 lb. Bement, sgl. leg st.
 Hammers, steam drop, 1500, 3000 lb.
 Hammers, st. drop, 5000, 2500 lbs.
 Hot saw & burring machine, Acme.
 Keyseater, No. 1 Baker, for motor.
 Keyseater, No. 2 Davis, cap 4".
 Lathe, gap, 36/60"x12/20" Harringt'n.
 Lathe, 36"x32" Am., grd. hd., m. d.
 Lathe, 36"x16" American, g. h., t. a., a. c. motor, (98\$)
 Lathe, 30"x12" LeBlond, q. c. g., t. a.
 Lathe, 24"x8" Porter, 2½" h. s., c. r.
 Lathes, 20"x10" Schellenbach, gd. hd.
 Lathe, 18"x10" Porter, s. b. g., c. r.
 Lathe, 18"x8" Hollingworth, q. c. g.
 Lathe, 18"x8½" Hendey, pl. change.
 Lathes, 18"x10" L. & S. & LeBlond.
 Lathe, 16"x8" Bradford, pl. change.
 Lathe, 14"x6" Monarch, q. c. g., t. a.
 Lathe, speed, 11"x4" Prentiss, t-rest.

127 Water St., Pittsburgh, Pa.

Miller, vertical, No. 2 Brown & Sharpe, gear box.
 Miller, bench, No. 1 Burke, hand.
 Miller, No. 3½ Fox, hand, 24"x6"x14½".
 Miller, No. 0½ Cin. pl., 18"x6"x15".
 Miller, No. 1½ Rockford, plain, 24"x7½"x19".
 Miller, No. 3 Cincinnati, plain.
 Miller, No. 3H LeBlond, pl. ind. hd.
 Miller, No. 1½ Hendey universal, vertical attachment.
 Miller, No. 2 Kempsmith universal.
 Miller, slab, 18"x18"x8" B. & S.
 Motor, 10 h. p., 110 v., d.c., 1080 rev.
 Nut tapper, ½" Acme 6-sp. semi-auto.
 Pipe machine, 6" Williams, mtr. dr.
 Pipe mchs., 4" & 6" Oster, belt dr.
 Planer, 60x60"x12" Pond, 3 hds., m. d.
 Planer, 48"x48"x16" D. & H. open-side, 3 heads.
 Planer, 42"x42"x12" Betts, 1 head.
 Planer, 42"x36"x20" Cin'ti, 4 heads.
 Planer, 36"x36"x10" Pond, 3 heads.
 Planer, 30"x30"x8" Niles, hy., 2 hds.
 Planer, 28"x28"x6" Gale, 1 head.
 Planer, 24"x24"x5" New H., 1 hd.
 Planer, 16"x16"x12", crank drive.
 Press or brake, 10" Robinson, toggle.
 Press, No. 27 Bliss, horning, b. f.
 Presses, No. 75½ Bliss, tie rod 6" st., s. b. g., m. d.
 Presses, No. 61 & 62 Bliss, plain.
 Presses for 3" horn, pl., 1½" stroke.
 Press, No. 56 Toledo, pl. trim., 3" str.
 Press, No. 11 Perkins, pl. trim., 3½" str.
 Punch, No. 2 Whitney hand, like new.
 Riveter, ½" Shuster, style A.
 Rivet hammers, 3-A, 4-A, high spd.
 Roll, 16"x½" Bertsch, a. c. motor.
 Saw, No. 11½ Higley, cap. 4" blade.
 Saw, Gorton, size 2B internal tooth.
 Shaper, 7" Rhodes, crank, horiz.
 Shaper, 21" American, b. g., crank.
 Shaper, 20" Cin'ti, b. g., crank.
 Shaper, crank, 17" Smith & M., s. g.
 Shaper, 28" Hendey, pillar type.
 Shaper, 18" Barker, crank.
 Shear, 60"x16 ga. 18" gap, power.
 Shear, 8" Pexto, foot power, 20 ga.
 Shear, rotary, 4" Lennox, 8" gap.
 Shear, plate, 9 x 3½", cap. 15", m. d.
 Shear, 124"x½", 24" gap., m. d.
 Slotter, 18"-18" Dill, a. c. mtr.
 Slotter, 8" Betts, for motor drive.
 Turret lathe, No. 1 Hardons & Oliver.
 Turret lathes, Libby, 18", 22" & 26".

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SECOND-HAND MACHINERY

FOR SALE BY

The Strong, Carlisle & Hammond Co., Cleveland, O., Detroit, Mich.

ENGINE LATHES.

12"x60" Fitchburg Lo-Swing.
14"x 6' Hamilton.
14"x 6' Prentice Bros., a. b. g., l. c.
g., with t. a., with 8" 4-jaw ind. ck.
15"x 6' South Bend, c. r. complete.
16"x 6' South Bend, c. r. complete.
18"x 8' Prentice c. r., l. c. g., chuck.
14"x 6' Reed, r. & f. rest.

18"x10' Star, 4-a. c., s. g., with 16"
4-jaw ind. chuck.
14" Reed production lathes, with
dbl. cut-off slide and carriage, (7).
14"x6' Hendey q. c. g., c. r. and t. a.,
with draw-in attach. and collets.
14"x6' Monarch, c. r., standard.
14"x8' Monarch, c. r., stand. pattern.

TURRET LATHES AND SCREW MACHINES.

No. 1 Warner & S., p. h., a. c. and b. f.
No. 2-A W. & S. g. h. tur. lathes.
No. 3-A W. & S. g. h. turret lathe.
No. 3, 14" screw tilted turret.
14" Acme screw mche., p. f. to tur.
26" Gisholt heavy duty turret lathe.
2"x24" Jones & L. g. h. flat turret.

No. 00 Brown & Sharpe auto.
No. 0 Brown & Sharpe auto. (3).
No. 2 Brown & Sharpe auto. (2).
No. 2 Warner & S. p. h. screw mchs.,
a. c. & b. f., p. f. to turret. (3).
1" Biggs, p. h., a. c. & b. f.
No. 4 W. & S., p. h., a. c. & b. f.

DRILLING MACHINES.

20" W. F. & John Barnes, stationary
head, b. g. and p. f. (2).
Henry & W. sgl. sp., h. s., b. b., ck.
No. 1 Minster high speed heavy
duty, with pump.
25" Superior, sliding hd., b. g., p. f.,
with tapping attachment.
21" Superior, sliding hd., b. g., p. f.,
with tapping attachment.
4-spindle Leland-Gifford, h. s., b. b.,
with p. f. to each spindle.

24" Baker heavy duty.
6' arm Western radial, with tap. att.,
arranged for motor drive.
20" W. F. & John Barnes, stationary
head, p. l. f., (2).
21" Superior, stationary hd., p. l. f.
20" Superior, stationary hd., p. l. f.
5' arm American triple geared radial
with speed box, s. p. d., with t. a.
and box table.
4' arm Hammond h. s. radial.

MILLING MACHINES.

No. 7 Becker plain.
No. 26 Becker pl., without bk. grs.,
with power fd., pump and tank.
No. 14 Rockford plain, with div. hd.
No. 24 Ohio plain b. g. complete.

No. 1-V Brown & Sharpe plain.
No. 22 Garvin, vertical spindle.
Potter & Johnston dbl. table auto-
matic production miller.

GRINDERS.

No. 10 Cochrane-Bly auto. bench
saw filing machine.
Type "DE" Hisey-Wolf internal.
No. 14-16 Besly, wet ring wheel.
No. 11 B. & S. plain grinders, (2).

American drill grinder.
Type WTA Cincinnati.
Plain emery wh'l stand with column.
No. 1 W. & M. univ. cutter & reamer.

SHAPERS AND PLANERS.

22"x22"x 5' Putnam planers (2).
42"x48"x10' Sellers planer.

36"x36"x12' W. & P., two rail heads.

METAL CUTTING TOOLS & SQUARING SHEARS.

Higley cold saw.
3" new Davis cutting-off machine.

36" Niagara foot power squ. shear.
30" Niagara foot power squar. shear.

GEAR CUTTERS AND HOBBSERS.

26" & 36" No. 3 Brown & S. auto.
No. 13 Brown & Sharpe auto.

No. 12 Barber-Colman hobbers.

HAMMERS.

Coffman post pwr. dr. hammer, 25 lbs.
Cady belt drop hammer, 100 lbs.

Quickwork body hammer.

MISCELLANEOUS.

Bench tapper, Montgomery, 1/2" cap.
Bench tapper, Hubbell, 1/2" cap.
Bolt cutter, 2" Morgan.
Broach, No. 2 J. N. Lapointe, with
set broaches and guides, 1/2" to 1/4"
keyway.
Broaching machine, Lapointe No. 1 1/2.

Pipe mche., No. 1, 1/2" to 2" Williams.
Pipe mche., No. 3, 1" to 6" Williams.
Pipe machine, Oster, cap. 1" to 4",
with full set r. & l. chasers.
Polishing lathes, City Machine Co.
Polishing lathe, Hammond, h. s., b. b.
Pulley lathe, Streit.

SECOND-HAND MACHINERY

FOR SALE BY

Bennett Machinery Co.,

30 Church St., New York City

Drill, radial, 3' Bickford plain
 Lathe, 24"x10' Draper.
 Lathe, 28"x10' McCabe.
 Lathe, 32"x35' Bement Miles.
 Lathe, 40"x13' Putnam, triple grd.

Lathe, 18"x 8' Monarch, q. c., t. a.
 Pipe machine, 6" Curtis & Curtis.
 Planer, 54"x12' Pond, 4 heads.
 Planer, plate, 18' Niles.
 Shaper, 15' Pratt & Whitney.

FOR SALE BY

Brown Machinery Co.,

2323 N. 9th St., St. Louis, Mo.

Boring mill, No. 10 Beaman-S., hor.
 Boring mill, 60" Sellers, 2 heads.
 Boring mill, 42" Bullard.
 Brake, D. & K. 8', 16 ga. cap.
 Die sinker, No. 3 Jackson.
 Drill, 24" Aurora, sl. hd., b. g., p. f.
 Drill, 24" Cincinnati, sl. hd., b. g., p. f.
 Drill, 26-spindle Baush, No. 3.
 Drill, 6 spindle Allen, b. b.
 Drill, No. 1 Barnes hor. radial.
 Drills, rad., 3' American & Mueller.
 Gear cutter, 30" Whiton.
 Gear hobber, No. 1 Farwell.
 Gear shaper, Fellows 36".
 Grinders, No. 6 & No. 14 Besly.
 Grinders, 5x18 Ott; Norton.
 Grinder, No. 12 Brown & Sharpe.
 Hammer, Dupont, size D.
 Lathes, 14", 16", 20", 28" Walcott,
 d. b. g., q. c. g.
 Lathe, 18"x10' LeBlond.
 Lathe, 17"x 6' Cincinnati, semi q. c.
 Lathe, 20"x8' Reed.

Lathe, 26"x14' Hamilton.
 Miller, 1-B Fox horizontal.
 Miller, No. 4 Hendey, b. g.
 Miller, No. 3 Becker.
 Miller, No. 5B Becker-B.
 Miller, 8", 12" P. & W., auto.
 Planer, 30"x30"x8' Pease.
 Planer, 54"x54"x12' Pond.
 Presses, L. & J. Nos. 1, 2, 3.
 Press, toggle, Robinson 10'.
 Profilers, two-spindle, Putnam,
 Reed-Prentice.
 Punch, Ryerson-Kling rapid action,
 18" throat, 1 in 1.
 Roll, plate straightening, No. 0
 Hilles & Jones.
 Shear, 8' Niagara, foot power.
 Shears, 134 Marshalltown rotary, 1".
 Shears, No. 260 Peerless 60", 14 ga.
 Shear, No. 13 Pettin, rotary, 14 ga.
 Stake riveter & punch, No. 3 Hilles
 & Jones, 5' throat.

Many other bargains. Write us about your needs.

FOR SALE BY

Jones Machine Tool Co.,

528-532 E. Front St., Cincinnati, O.

LATHES.

14"x 6' Bradford, quick change.
 14"x 6' Monarch, qck. chg., s. p.,
 geared head, (2).
 16"x 6' Lodge & Shipley, qck. chg.
 16"x 8' LeBlond quick change.

20"x12' Greaves Klusman, q. c.
 24"x16' American, q. c., cone drive.
 30"x12' H. S. & Gamble, q. c.
 24"x12"x16' Schumacher double
 spindle lathe.

MILLERS.

No. 1 B. & S. plain, (2).
 No. 2 Hendey plain.

No. 2 Kempsmith plain.
 U. S. hand miller.

PLANERS.

36"x36"x8' Flather, 2 heads.
 30"x 8' Gray, 2 heads.

32"x20' American, 2 heads.
 42"x36"x26' Cincinnati, 2 heads.

PRESSES.

Nos. 2 & 3 Toledo, o. b. inc.
 No. 2 Robinson, o. b.
 No. 3 L. & A. double end punch.

No. 18 Bliss, open back inc.
 No. 20 Bliss, o. b. inc., (10).
 Horning pres., No. 15 Robinson, (3).

SHAPERS.

14" Steptoe, plain crank.
 18" Barker, plain crank.
 20" Steptoe, back geared crank.

21" American, back geared crank.
 24" Barker, back geared crank.
 24" Smith & Mills, bk. grd. crank.

SQUARE SHEARS.

36" No. 236 Niagara, power.
 96" P. S. & W. foot power, 20 ga.

96" Robinson, power, 14 gauge.
 10"-10 gauge, worm drive.

MISCELLANEOUS.

Bolt cutters, 4" Acme.
 Drill presses, 24" Sibley & Ware (4).

Grinder, No. 60 Heald, cylinder.
 Radial, 4' Bickford.

SECOND-HAND MACHINERY

FOR SALE BY

J. L. Lucas & Son, Inc.,

No. 3 Fox St., Bridgeport, Conn.

LATHE CHUCKS.

We have a surplus of good used Chucks, two, three and four jaw.

Price:—\$2.00 per inch; (10" Chuck—\$20.00, etc.)

Tell us what size you need and we will send it c. o. d.

FOR SALE BY

Tubor, Velick & Co., Inc., - - 628-630 W. Lake St., Chicago, Ill.

Telephones: Monroe 4199-6813. No Branches

PUNCH PRESSES.

No. 2 Walsh.
No. 4 Walsh, (5).
No. 5 American Can.
No. 4 Rockford.
No. 7 Beatty, cap. 1½" in 1".
No. 15 Torris Wold.
163½ Toledo, 9½" stroke.

No. 17 Williams-White double end punch & shear.
Nos. 13 & 15 single end punches.
No. 18 Kick presses.
Long & Allstatter horn punch, capacity 1½xl.

DRILL PRESSES.

14" Excelsior.
20" b. g., p. f., new, \$130.
20" Weigel.
26" Hoefler.

4-spindle Avey, hi-speed, auto. feed.
4-sp. Whipp, hi-speed, No. 2 taper.
Bench type drills, \$16.
Baker heavy duty.

MILLING MACHINES.

No. 2 LeBlond.
No. 2 Cincinnati vertical.
No. 3 Kemp Smith.

Kearney & Trecker No. 2-A, single pulley drive.
A number of hand millers.

LATHES.

11"x 5' Sterling.
12"x 5' Worcester, q. c.
14"x6' Prentice.
15"x 5' South Bend.
15"x 8' Sidney, q. c.
16"x 6' Sidney, q. c., (2).
16"x 6' Monarch q. c.
16"x 8' Canedy-Otto.
16"x 6' Hendey, q. c., taper att.
16"x 8' South Bend, q. c.

17"x 8' Sidney, q. c.
18"x 8' Chard.
19"x10' Sidney, q. c., (2).
20"x 8' Lodge & Shipley, geared head, s. p. drive.
24"x10' Canadian, q. c., d. b. g., (3).
26"x10' Lodge & Shipley, q. c.
27"x14' Sidney, q. c.
Dalton Six.

PLANERS.

24"x24"x6' Pond.
24"x24"x 8' Putnam.
30"x30"x 8' Fitchburg.

36"x36"x 7' Flather, 2 heads.
36"x36"x 8' Cincinnati.

SHAPERS.

14" Flather.
14" Steptoe.
16" Ohio.

16" Queen City.
16" & 20" Whipp, b. g.
20" Cincinnati.

SCREW MACHINES.

No. 2 Pratt & Whitney, hand.
Warner & Swasey.

No. 2 Smith, hand.

GRINDERS.

B. & S. universal.
No. 2 Manhattan surface.

No. 14 Besly, disc.
Emery grinders, #2 and up.

WOOD-WORKING MACHINERY.

Band saws, 36" Famous, new, (10).
Boring mills, Andrew, (3).

Swing saws, Porter, (4).

MISCELLANEOUS.

Brake, power, 6' Dreis & Krump.
Buffers, U. S. and Westinghouse, 5 h. p., b. b.
Cold saw, No. 20 Lea-Simplex.
Hack saws.
Hoist, 3-ton electric.
Lift trucks, Barrett, 1 ton cap.
Leather belting.

Motors, a. c. and d. c.
Punch & shear, No. C Cleveland.
Radial drill, 3½' Canedy-Otto.
Radial drill, 3½' Cin'ti Bickford.
Roll, power, 10" roll, cap. 4" plate.
Time clocks, International.
Woodworking machines.
Pulleys, shafting and hangers.

SECOND-HAND MACHINERY

FOR SALE BY

Louis E. Emerman & Company, 1761 Elston Ave., Chicago, Ill.

Bending brake, Chicago, capacity $\frac{1}{2}$ "x6', motor driven.....	\$ 850.
Bending rolls, Wickes Bros., capacity, $\frac{1}{2}$ "x10'.....	2875.
Drill presses, Kern 42", brand new.....	575.
Drill, multiple, Natco No. 30, 20"x40" head, 48 spindles.....	1150.
Drill, multiple, Natco No. 32, 20"x54" head, 42-1 $\frac{1}{2}$ " spindles.....	1250.
Gear cutter, Brown & Sharpe No. 4, 36" capacity.....	450.
Gear generator, Gleason 11".....	575.
Gear hobber, Newark No. 2.....	350.
Grinder, automobile cylinder, Baxter D. Whitney No. 23.....	875.
Hack saw, Peerless 9"x9", motor driven.....	325.
Lathes, Gisholt 20" automatic turret.....	1750.
Milling machine, Valley City No. 1 $\frac{1}{2}$ universal, complete.....	775.
Planer, 24"x24"x8' Gray, single head.....	775.
Planer, 84"x84"x32' Putnam, 4 heads, with motor.....	4250.
Punch and shear, Williams-White No. 14, double end.....	1250.
Radial drills, Bickford 2 $\frac{1}{2}$ ", single pulley drive.....	550.
Squaring shear, Long & Allstatter No. 4, $\frac{1}{2}$ " plate.....	850.

FOR SALE BY

Chas. Molitor Machinery Co., 118-124 S. Clinton St., Chicago, Ill.

MILLING MACHINES.

No. 3 Ingersoll vertical.	No. 2 Kempsmith universal.
No. 4 LeBlond universal.	No. 3 Kempsmith plain.
No. 3-H LeBlond universal.	Gooley & Edlund production miller.

SHAPERS.

20" Gould & Eberhardt b. g. crank.	16" Steptoe b. g. crank.
18" Hollingworth b. g. crank.	15" American crank.
17" Smith & Mills b. g. crank.	14" Springfield crank.

LATHES.

32"x10' LeBlond, qk. change gear.	16"x 8' Flather, quick change gear.
26"x10' Niles, quick change gear.	16"x 6' Monarch, q. c. g., taper att.
20"x10' American, q. c. g., crank shaft.	13"x11' S-bastian, plain change gr.
20"x10' Boye & Emmes, qk. ch. gr.	20" to 24" Spinning lathes, bench
16"x10' Kern, Cincinnati, qu. ch. gr.	lathes.

BORING MILLS, RADIALS, DRILLS.

36" Bullard rapid production.	25" Kokomo high speed.
36" Fosdick radial, gear box.	2, 3, 4, 5 & 6 spdl. Aveys, $\frac{1}{2}$, $\frac{3}{4}$, 1" cap.
Single spindle holehog.	1 & 2 spdl. Barnes h.sp., camel back.

BOLT CUTTERS.

1" Landis, double head.	$\frac{1}{2}$ " Geometric, single head.
$\frac{1}{2}$ " Geometric, single head.	2" Murchey, double head.

PRESSES.

No. 1 Bliss 3 $\frac{1}{2}$ " & 7" toggle.	No. 4 Rockford inclinable.
No. 7A Niagara b. g. inclinable.	No. 75 Toledo straight side.
No. 5 $\frac{1}{2}$ Walsh inclinable.	No. 3 Blake & Johnson arch presses.

GRINDERS.

No. 2 Brown & Sharpe universal.	No. 3 Wilmarth & M., magnetic cks.
No. 1 Brown & Sharpe universal.	Nos. 2 & 3 La Salle plain.
No. 23 Brown & Sharpe cylinder.	Fitchburg, Landis, Greenfield, etc.
No. 11 Brown & Sharpe plain.	Besly, Gardner 18", 26", 40" disc.

SCREW MACHINES AND TURRET LATHES.

Jones & Lamson, dbl. spindle, (3).	Nos. 1, 2, 3 & 5 Bardons & Oliver.
Greenlee, 3 $\frac{1}{2}$ " capacity.	1" to 1 $\frac{1}{2}$ " Acme and Warner & S.
Nos. 0, 1, 2, 3, 4 & 6 Foster.	

MISCELLANEOUS.

Chucks, 300 new and used, all sizes.	Rolls, 10"x4"; 7"x36 steel corrugat'g.
Drill presses, large stock.	Spot welders, Toledo and Thomps'n.
Hammer, 60 lb. Bradley.	Square shears, 3', 4' 6' & 8'.
Keyseaters, riveters, tapping machines, vises of all kinds, time clocks, cutters, reamers, etc., etc., at money-saving prices.	

SECOND-HAND MACHINERY

FOR SALE BY

The O'Brien Machinery Co.,

113 N. Third St., Philadelphia, Pa.

Bending rolls, 12' Kling, motor dr.,
15" & 11" dia. rolls, cap. 4" plate.
Drill, 32" Aurora, motor driven, tapping
attachment.
Grinder, 6"x32" Norton plain.
Hammer, 100 lb. Massillon, steam.
Lathe, 24"x12' Schumacher & Boye.
Lathe, 26"x21' Whitcomb-B., mtr.dr.
Miller, No. 2 Cincinnati plain, geared
head, single pulley drive.
Miller, No. 3-H LeBlond plain.
Miller, No. 3-B Hendey plain.
Miller, No. 4 LeBlond plain, heavy
duty.
Miller, No. 2 Rockford universal.
Miller, No. 3 Kempsmith universal.
Milling and drilling machine, No. 2
Knight vertical.
Pipe machines, 2", 4", 6", 8" & 12"
Oster, Cox, Eaton-Cole & Burn-
ham and Jarecki makes, belt or
motor driven, complete stock.
Planer, 36"x36"x12" Woodward &
Powell, motor driven, 3 heads.
Presses, Nos. 18, 19 and 20 Bliss.

Planer, 34"x54"x14" Pond Machine
Tool Co., two heads.
Press, No. 34 Toledo gr. str. side.
Punch, No. 2 H. & J., sgl. end, 30"
thrt., motor dr., cap. 1 1/2" thru 1".
Punch, Rock River, single end, 42"
thrt., motor dr., cap. 1 1/2" thru 1".
Punch and coping machine, 36" cap.,
Long & A. type B, motor driven.
Punch and shear, No. 3 Hilles & J.,
dbl. end, motor dr.; punch end,
42" thrt., cap. 1 1/2" thru 1"; shearing
end, 36" thrt., cap. 1" plate, 2 1/2"
round, 7"x1 1/2" flat, 5"x5"x 1/2" angle.
Radial drill, 48" Cincinnati Bickford,
motor driven.
Shapers, 12", 14", 16", 21" and 24"
stroke, assorted makes.
Shear, Ryerson rotary bevel, cap. 4"
plate.
Trimming press, No. 75 1/2 Bliss,
straight side, with side shear at-
tachment.
Turret lathe, No. 6 1/2 Bardons &
Oliver, wire feed, cabinet base.

FOR SALE BY

Norton-Broadway Machinery Co., 236-38 Broadway, Cincinnati, O.

LATHES.

12"x21"x8' Willard, removable
gap, semi-quick change.....\$ 525.
16"x8' Columbus, q.c., prac. new 295.
16"x8' Cincinnati, q.c. 275.
16"x8' Lathe & Morse, l. c. 100.
18"x8' Lodge & Davis 100.
19"x8' Fay & Scott, l. c. 195.

20"x10' Bradford, q. c.\$ 650.
24"x12' Monarch, q. c., nearly
new 1250.
24"x14' American, q. c. 850.
26"x14' Putnam, ex. hvy. duty. 1250.
24"x42"x12' Schumacher & B.
two spindle 675.

MILLING MACHINES.

2-B Brown & S., sgl. pulley...\$ 775.
No. 3 Brown & Sharpe plain... 500.
No. 5 Brown & Sharpe plain... 650.

No. 4 Cin'ti plain, incomplete\$ 300.
No. 2 Cincinnati, old st. univ. 400.
No. 20 Oesterlein universal.

SHAPERS.

16" Queen City, b. g., belt
shifter.....\$ 375.
14" Rockford, crank..... 275.

24" Queen City, b. g. crank...\$ 750.
26" Hendey, geared friction
drive 300.

DRILLS.

24" Hoefler, 2-spindle.....\$ 375.
32" Aurora, sliding head..... 250.
28" Bickford, sliding head..... 300.
28" Aurora, sliding head..... 250.

28" Aurora, tapping attach.....\$ 285.
24" Cincinnati, tapping..... 310.
30" Prentice radial 525.

PLANERS.

16"x18"x48" Hendey.....\$ 275.
32"x32"x20" American..... 950.

32"x32"x 8' Flather.....\$ 750.
42"x42"x26" Cincinnati, 2 hds... 2500.

BORING MILLS.

64" Niles, vertical, 2 heads.....\$1750.
42" Bullard, 2 heads..... 1500.

32" Colburn, 2 heads.....\$1250.
36" Niles, 2 heads..... 750.

MISCELLANEOUS.

Punch presses, Bliss, Willard, Sidney, Niagara, Ferracute, East Iron,
Punches & shears, Nos. 4, 5 & 7 Long & Allstatter, No. 3 Hilles & Jones.
Punch, style A Long & Allstatter, 2" thru 1 1/2".....\$ 850.
Turret, No. 6 Warner & Swasey..... 525.
Compressors, Pumps, Engines, Boilers, Threading Machines, Grinders,
Swaging Machines, etc., etc.

SECOND-HAND MACHINERY

FOR SALE BY

The Reeve-Fritts Company, - 37 So. Desplaines St., Chicago, Ill.

Arbor press, No. 5 Atlas.
Boring mill, 30" Bullard vertical.
Centering machine, 4' Whiton.
Drill, radial, 2 1/2' C. & O., pwr. fd.
Drill, 14" H. & W., high speed.
Drill, 22" Champion, b. g., pwr. fd.
Gear shaper, 36" Fellows.
Grinder, floor, 3 h. p. Ransom, d. c.
Grinder, cutter, No. 1 LeBlond.
Lathe, 10" x 5' Monarch, q. c. g.

Lathe, 16" Drees Fox, b. g.
Miller, No. 1 Kempsmith plain.
Planer, 22" x 22" x 5' Powell.
Press, No. 175 Stoll double cr.
Screw mch., No. 2 Foster, fric. head.
Screw mch., No. 4 W. & S., fric. hd.
Shaper, 14" Steptoe, crank.
Shaper, 16" Rockford, b. g. crank.
Shaper, 20" Smith & Mills, b. g. cr.
Spot welder, Taylor, 1/2" capacity.

FOR SALE BY

Niles-Bement-Pond Company, - 111 Broadway, New York
Located at our various factories

LATHES.

12" x 8' Reed, taper.
14" x 8' P. & W., taper.
24" x 24' Niles.
26" x 10' Pond, 220 volt, d. c. motor.
28" x 12' Pond.

36" x 12' Pond, t. g., 220 v., d. c. mtr.
36" x 17' Pond, taper, 220 v., d. c. mtr.
42" x 20' Niles, t. g.
48" x 26' Niles, t. g.
50" x 17' Miles, old style.

TURRET LATHES.

2", 2 1/2" and 3" P. & W.
2" x 24" W. & S. hollow hex.
21" and 28" Pond rigid turrets.

28" & 34" Gisholts.
32" Conradson-American turret.

PLANERS.

30" x 20" x 6' Bement.
24" x 24" x 6' Powell.
24" x 24" x 6', 8' and 10' Whitcomb-B.
26" x 26" x 6' Gray.
30" x 30" x 6' & 10' Pond, 2 heads.
30" x 30" x 6' to 12' Pond, reversing motors.
36" x 36" x 16' to 16' Niles.
36" x 36" x 12' to 16' Pond, reversing motors.
42" x 42" x 14' Bement.

42" x 42" x 26' Pond, reversing motor.
48" x 48" x 16' Pond, reversing motor.
48" x 48" x 20' Bement, belt.
54" x 36" x 10' Bement, belt.
50" x 36" x 22' Pond, reversing motor.
54" x 54" x 22' Pond, rev. motor.
60" x 60" x 20' & 24' Niles, belt.
72" x 72" x 12' Bement, belt.
72" x 60" x 14' Bement, reversing mtr.
10' x 10' x 36' Betts, 220 volt, d. c. motor through belts.

MILLERS AND GEAR CUTTERS.

No. 3-B plain, 220 v., d. c. motor, Brown & Sharpe.
No. 4 plain, cone pulley, B. & S.
No. 5 plain, cone pulley, B. & S.
No. 4-48" Newark, 220 v., d. c. mtr.

6 x 46 to 132" P. & W. old style thread millers.

15" Gleason bevel gear generator.
No. 5 vertical, cone pulley, B. & S.
36" to 60" B. & S. spur gear cutters.

DRILLING MACHINES.

32" Aurora, tapping attachment.
40" Aurora, tapping attachment.
3 1/2" Morris speed box radial.
5' Niles full universal, speed box.

6' Pond, 220 volt, d. c. motor.
6' Niles full universal, speed box.
12-spindle No. 13 P. & W. multiple.

BORING MACHINES.

36-44" Niles side hd. mill, 220 v., d. c.
51" Niles mill, with turret head.
60" Bement b. & t. mill.

10' Niles mill, 220 v., d. c.
4 1/2, 5 and 6 1/2" Niles floor borers.
2 1/2 to 4 1/2" horiz. bor. and drill. mches.

MISCELLANEOUS.

Air compressors, 324' and 835', steam drive.
Crane, 3-ton, 10' span, Niles 3-motor, 220 volt, d. c.
Engines, 125, 150 and 200 h. p. Philadelphia Corliss.
Generator set, 100 k. w., 22 volt, d. c., direct connected to engine.

Heater, 600 h. p. Cochrane, fd. water.
Grinder, Mummert-Dixon portable radial, 220 volt d. c. motor.
Grinder, No. 6 Bryant hole gr.
Grinder, P. & W. thread miller cutter.
Pumps, 200 to 1600 gal., steam drive.
Slotter, 18" Putnam, 220 volt, d. c. motor.

SECOND-HAND MACHINERY

FOR SALE BY

A. M. Stoeck Machinery Co.,

Blue printing and drying machine.
Boring mills, 42" Baush, 54 & 60"
Niles, all have 2 heads, and others.
Drill presses, 1 spindle Sigourney;
24" Barnes, with tap attachment.
Gear hobbors, cutters: 12" Cincinnati;
48" & 60" Gould & E., and others.
Grinders, Heald piston ring (4);
Nos. 1 and 3 LaSalle plain and
surface; 3"x18" Norton, and others.
Hammer, 500 lb. Beaudry, & others.
Lathes, 22" to 44" McCabe; 9x42
Barnes; 14x6 Rockford, q. c. g., late
type; 14x9 American, q. c. g.; 18x8
Barnes heavy duty; 15 & 24 spin-
ning, and others to 60".
Milling mchs., No. 25 Becker plain;
No. 14 Valley City plain; No. 0
Rockford plain; No. 2 Van Norman
Duplex; No. 3 Thurston dieing.
Oil extractors, centrifugal, (8).
Pipe machines, 2" & 6" Jarecki.

560 W. Adams St., Chicago, Ill.

Punch and shears, No. 5 Long & A.
double end, 3" thru 3"; No. 14 W.,
double end, 15" thru., and others.
Punch presses, No. 16 Bliss hornring;
No. 3 Bliss Stiles; No. 4 Robinson,
o. b. i.; No. 4 Long & A. multiple
punch; and others.
Rolls, 16" Bertsch, pipe forming.
Saws, 9x9 Sterling high speed; 12x12
Racine high speed.
Screw machines, Nos. 2 & 3 Foster
(12); Nos. 52 & 53 Acme; No. 0
Brown & Sharpe; 9—No. 2 Brown
& Sharpe, others plain and univ.
Screw threader, No. 10 Waterbury.
Shapers, 18" Flather, crank; 24"
Kelly, b. g.; 24" Rockford, b. g.;
6" traveling head shaper.
Shears, No. 3 N. D. splitting, 3" cap.;
Pittsburgh alligator, 1".
Welders, both spot and butt.
Wire strait'g mche., 3/16" Shuster.

FOR SALE BY

Wm. C. Johnson & Sons Machinery Co.,

1001-3-5 N. Sixth St.,

St. Louis, Mo.

LATHES.

9"x12" Sundstrand.
15"x 8" Sidney, q. c.
18"x 6" American, q. c.
21"x 8" Sidney, q. c.
24"x12" Lodge & Shipley, q. c.
26"x16" Niles, plain change.

26"x13" Putnam, q. c., ar. for motor.
30"x15" American, q. c.
32"x16" LeBlond, q. c.
33"x20" Draper, triple geared.
36"x18" Prentice Bros., t. a.
20" Pit lathe.

SHAPERS.

16" Flather, 4 speeds.

PLANERS.

36"x36"x10" Flather.
60" open side Detrick & H., 3 heads.

GRINDERS.

12"x42" Landis universal.
30" Diamond face grinder.
5"x18" Ott plain grinder.

DRILLING MACHINES.

20" Barnes.
24" Aurora, sliding head.
28" Barnes, stationary head.
34" sliding head.

3' arm Mueller speed box drive.
3' arm Prentice radial.
4 spindle Avey, power feed.

MILLERS.

No. 34 Knight vertical.
Nos. 0 and 3 Burke bench millers.

MISCELLANEOUS.

Boring machine, horizontal, No. 2
Pawling & Harnischfeger.
Boring mill, No. 1 Binsse horiz.
Boring mill, 60" Bullard.
Bulldozer, 75-ton Lorie hydraulic.
Engines, Corliss, 75 to 200 h. p.
Gas furnace, Gilbert & Barker.
Magnetic pulley, 24"x28".
Press, portable, hydraulic.
Punch, No. 14 Williams-White, dbl.
Punch, No. 5 Long & Allst., 5" thr.

Punch, No. 7 Long & Allst., 4" thr.
Riveter, 24" Shepard.
Saw, No. 12 Higley.
Saw, No. 21 Higley.
Saw, Lucas revolving, 31" blade.
Screw machine, No. 6 Woods.
Shear, squaring, 50" Excelsior.
Shear, power, circle, Niagara.
Spot welder, Toledo, 20 k. w.
Tapper, No. 2 Garvin.
Tilted turret lathes, Wood, (3).

SECOND-HAND MACHINERY

FOR SALE BY

B. L. Saltzman,

524-526 W. Van Buren St., Chicago

MOTORS.

New $\frac{1}{2}$ h. p., 1 phase, a. c., 110 volt.....	\$10.00.
New $\frac{1}{2}$ h. p., 1 phase, rep. ind., 110/220 volt.....	32.50.
New 1 h. p., 1 phase, rep. ind., 110/220 volt.....	50.00.
New 1 h. p., 3 phase, 60 cycle.....	40.00.

LATHES.

20"x8' LeBlond.	14"x 6' LeBlond.
18"x 8' Flather.	2x26 Pratt & Whitney, late model
14"x 6' Sebastian.	turret lathes, (2).
14"x 6' American.	

DRILL PRESSES.

20" Milwaukee.	3 spindle Sigourney.
20" Champion.	

PUNCH PRESSES.

No. 4 Loshbough-Jordan, o. b. i., (2).

TINNERS' TOOLS.

Brake, 8 ft., 14 gauge; and other sizes.	Folders, all sizes.
	Square shears, hand and power.

MISCELLANEOUS.

Bolt threader, Wells, single and double head.	Miller, No. 23 Fox plain.
Boring mill, 30" Colburn.	Miller, No. 14 Kempsmith universal.
Grinder, disc, No. 8 Besly 20".	Screw machine, No. 2 Foster.
Miller, No. 1 Kempsmith plain.	Screw machine, 8"x14" Brown & Sharpe automatic.

We have for sale a large line of woodworking and ironworking machinery.

Write us today for what you need, as we have many bargains.

FOR SALE BY

W. P. Little Co.,

West 9th & Front Sts., Cleveland, Ohio

BOLT CUTTERS.

2" Foote-Burt.	2" National.
----------------	--------------

BORING MACHINES.

30" Colburn vertical.	No. 3 Marvel cylinder.
-----------------------	------------------------

LATHES.

13"x 6' Willard, c. r.	16"x 6' Bradford, q. c. g., & t. a.
14"x 6' LeBlond, q. c. g., c. r.	18"x 8' Porter, d. b. g.
16"x 6' LeBlond, q. c. g., c. r.	26"x 9" Bridgeford, q. c. g., & d. b. g.

MILLING MACHINES.

No. 0 Kempsmith universal.	No. 1 Kempsmith pl., with div. hd.
18" Cincinnati b. g.	No. 2 Cincinnati pl., with div. hd.
No. 15 Brainard.	No. 6 Whitney hand.

PUNCH PRESSES.

No. 2 Bliss Stiles pattern.	No. 24 Cleveland horning.
No. 21 Bliss.	No. 87 Zeh & Hahnemann.
No. 14 Williams & White.	No. 4 Niagara gang punch.
No. 3 Long & Allstater, dbl. end.	Z. & H. double acting cam drawing.
S. G. 35 Ferracute double crank.	30" geared, arch.

GRINDERS.

No. 6 Bryant internal.	No. 3 Modern universal.
No. 75 Heald internal.	No. 6 Rivett internal.

RADIAL TAPPING MACHINE.

$\frac{1}{2}$ " Rickert & Shafer radial tapping machine, motor driven.

SPINNING LATHES.

22" Pryibil.	28" Pryibil.
--------------	--------------

MISCELLANEOUS.

Hammer, 50 lb. Bradley upright.	Slotter, 8", rotary table.
Hammer, 250 lb. Morgan steam.	Spline miller, $\frac{1}{2}$ " Pratt & Whitney.
Keyseater, No. 0 Mitts & Merrill.	Turret, No. 2 Bardons & Oliver.

SECOND-HAND MACHINERY

FOR SALE BY

Botwinik Brothers, - **21 Sylvan Ave., New Haven, Conn.**

"Connecticut Machinery Merchants"

MILLING MACHINES.

25—Gooley & Edlund "Briggs type A" high duty production milling machines, complete with all regular equipment, practically brand new, price \$175 each, f. o. b. cars, New Haven, Conn.

Send for our latest 52 page Catalog No. 101.

FOR SALE BY

Clark Machinery Co., **1235-45 St. Clair Ave.,** **Cleveland, O.**

Box nailer, Morgan No. 7, mtr. dr.
Drill press, 4 spindle gang.
Lathes, 16" x 6" L. & S. q. c., d. b. g., (4).
Lathe, 1" x 8" Sidney, q. c., d. b. g.
Miller, Steptoe No. 0, b. g.
Miller, No. 2 B. & S. universal.

Miller, No. 20 Ohio universal.
Miller, No. 00 B. & S. hand.
Planer, 42" x 42" x 8" Gray.
Punch press, No. 21 Bliss, 5" str., o. b. i.
Punch press, No. 51½ Cleveland, s. s.
Shaper, 16" Queen City, b. g.

FOR SALE BY

Reliance Machinery Sales Company

Brighton Road at Pennsylvania Ave., - **Pittsburgh, Pa.**

Air compressor, 321" Laidlaw, b. d.
Blower, No. 3-F American.
Boring mills, 30" Bullard, 1 head.
Boring mill, 34" Colburn, 1 head.
Boring mill, 72" Betts vert., 2 hds.
Boring mill, 90" Niles vert., 2 hds.
Buffer, No. 14 Builders Iron Fdry.
Bulldozers, Nos. 5, 6, 7 & 8 W.-W.
Die sinker, No. 6 Jackson.
Die slotter, 3½" stroke, Garvin.
Drill, 21" Cincinnati, s. h., t. a.
Drill, 24" Hoefer, sliding head.
Drill, 36" Snyder, sliding head.
Drill, 2' 6" Carlton high speed radial.
Drills, Amer. 4 & 5' radial, g. b., s. p. d.
Drills, No. 2 Colburn, mfg. type, (4).
Drill, No. 2 Colburn 4-spdl. gang.
Drillers, 5-spindle Detroit, (2).
Flanging machine, McCabe.
Gear cutter, 24" Becker-B. auto.
Gear cutter, 36" Whiton.
Gear cutter, 60" Gould & E.
Generator set, 250 k. w., G. E., 250 volt, d. c.

Grinder, No. 2 Detroit centerless.
Grinder, Norton 10" x 24".
Hammer, 40 lb. Bradley, cush. helve.
Hammer, 100 lb. upright power, b. d.
Hammer, 2500 lb. Morgan, st. forg.
Lathe, 14" x 8" Whitcomb-Blaisdell.
Lathe, 15" x 6" Prentice, bargain.
Lathe, 24" x 12" Rahn & L., q. c. g.
Lathe, 30" x 12" Johnson, triple grd.
Lathe, 34" x 12" LeBlond, trip. grd.
Lathe, 36" x 18" American, grd. hd.
Miller, No. 2 Cincinnati, h. p. vert.
Miller, No. 3 Hendey plain.
Miller, model "B" Becker, vert., s. p. d.

Nut tapper, 4" Acme, 6 sp., semi-aut.
Pipe machine, Cox, 2½" to 8".
Pipe machine, Merri-l, 2½" to 12".
Planer, P. & W., 16" x 16" x 4", 1 hd.
Planer, 30" x 30" x 10" Powell, 1 head.
Press, No. 52 Bliss, s. s., 2 stroke.
Presses, Nos. 61 & 62 Bliss o. b., fly-wheel.
Press, No. 73 Consolidated, o. b., 2½" st.
Press, No. 74 Consolidated, o. b., 2½" st.
Press, No. 65 Consolidated, geared.
Press, No. 56 Toledo, geared, m. d.
Press, Ferracute, type SA182, 500-t.
Punch, Cleve., 24" thrt., 1½" x 1½", m. d.
Punch, Cleve., 15" thrt., 1½" x 1", m. d.
Punch, No. 6 L. & A., s. e., 1½" x 1½".
Punch, No. 5½ Hilles & J., 1½" x 1 x 1½".
Punch, 72" Cleve., 1½" x 1", m. d.
Punch, 48" Cleve., 1½" x 1", m. d.
Punch tables, Lysholm, to fit 72" punch, (8).

Saw, No. 3 Ryerson h. s. friction.
Screw mchs., No. 52 National-Acme.
Screw mchs., No. 55 National-Acme.
Screw mchs., No. 73 National-Acme.
Screw mchs., No. 53 National-Acme.
Screw machine, No. 2 Foster, pl. hd.
Screw machine, No. 2 W. & S., pl. hd.
Shaper, 16" Hollingworth, b. g. crank.
Shaper, 20" Cincinnati, b. g. crank.
Sh., No. 5 Quickwork, cap. 1" plates.
Sh., No. 6 Quickwork, cap. 1" plates.
Shaper, No. 38 L. & A. alligator, 1½".
Shear, No. 54 Beloit combination.
Shear, squaring, 96" Stoll, 16 ga.
Shear, squaring, 96" power, 20 ga.
Shear, 48" Bertsch, 18" gap, 10 ga. cap.
Upsetter, 3" Acme.

Our warehouse is full of bargains. What have you for sale?

SECOND-HAND MACHINERY

FOR SALE BY

Brownell Machinery Co.,

11-13 Eddy St., Providence, R. I.

BORING MILLS.

- | | |
|---|----------------------------------|
| 24" Bullard New Era vert., ser. 11008. | No. 1 Cleveland horizontal, 24". |
| 24" Bullard rapid product'n, ser. 6179. | No. 3A Universal horizontal. |
| 24" Bullard rapid product'n, ser. 6847. | |

DRILLING MACHINES.

- | | |
|---|---|
| 4-spdl. H. G. Barr sensitive, power feed to each spindle. | 5-spdl. Henry & Wright "K". |
| 3-spdl. Reed-Prentice, h. s., b. b. | 23" Prentice Bros., stationary head, back geared. |

MILLING MACHINES.

- | | |
|--------------------------------------|--------------------------------------|
| 24x8 Ingersoll, fixed rail, 3 heads. | No. 15 Garvin plain, 42" table feed. |
| No. 1-M Potter & Johnston. | No. 6 Becker vertical. |
| No. 4 Cincinnati plain. | No. 6 Whitney hand. |
| No. 25 Bilton plain. | |

LATHES.

- | | |
|---------------------------------------|----------------------|
| Bosworth milling lathes. | 14"x10' Hendey. |
| 10"x 3' Adams Bros. speed lathes. | 25"x16' Reed, taper. |
| 12"x 4' Garvin hand lathe. | 26"x21' Reed. |
| 12"x 4' Reed, oil pan, taper, rod fd. | |

GEAR CUTTERS AND GRINDERS.

- | | |
|----------------------------------|----------------------------------|
| Whiton hand gear cutter. | No. 1 LeBlond tool and cutter. |
| No. 12 Brown & Sharpe automatic. | No. 3 Wilmarth & Morman surface. |
| No. 3 Brown & Sharpe automatic. | 10x72 Norton plain. |
| No. 612 Fellows gear shaper. | |

PLANERS AND SHAPERS.

- | | |
|------------------------------|----------------------------------|
| 17"x17"x 4' Whitcomb. | 28"x30"x14' Whitcomb, 2 heads. |
| 20"x17"x 5' Whitcomb. | 36"x36"x22' Pond. |
| 22"x22"x 5' Whitcomb. | 60"x60"x12' Pond, 4 heads, m. d. |
| 24"x24"x 6' Powell. | 16" Sellow tool room shaper. |
| 28"x26"x10' Pratt & Whitney. | 20" Kelly back geared shaper. |
| 30"x30"x 6' Powell hy-speed. | 28" Hendey friction shaper. |

SCREW MACHINES.

- | | |
|---------------------------------------|------------------------------------|
| No. 2 Soutworth, 1", plain head. | 2x24 Jones & Lamson, chucking. |
| 14"x18" Pratt & Whitney, b. g., p. f. | No. 4-A Potter & Johnston. |
| No. 24 Garvin, grd. friction head. | No. 2-P Potter & Johnston, piston. |

MISCELLANEOUS.

- | | |
|-------------------------------------|--|
| Drop press, 200 lbs. Standard auto. | Shaft straightener 3", Rockford, 10'. |
| Oil separator, No. 2 American. | Slotter, 12" Bement-Miles. |
| Pipe machine, No. 7-B Jarecki. | Spot welder, Toledo, 550 v., 60-cycle. |
| Rolling mill, 5x8 McWilliams. | |

A CHAIN

The advertisers in the Blue Book pay Hitchcock. He sends you the Blue Book free. You buy the articles advertised. The chain is complete.

BUT—

—suppose the advertisers do not know that you saw it in the Blue Book—where does Hitchcock come in? When writing to advertisers, won't you kindly give Hitchcock credit?

SECOND-HAND MACHINERY

FOR SALE BY

Fitzsimmons & Cole Machinery Company

1208 House Building,

Pittsburgh, Pa.

Air compressor, 10x12, 164 cu. ft.
Angle bending rolls, 4"x4"x4".
Bending rolls, 12"x4" Kling, m. d.
Bolt cutters, 1 1/2", 2" & 3" Landis.
Borer, car wheel, 42" N. B. P.
Boring mill, 60" Betts, 2 bds., m. d.
Boring mills, 42", 52" & 62" King.
Brake, 10" Chicago, No. 12 gauge.
Cold saw, 18" Higley.
Coping machine, 24" L. & A.
Drill, radial, 4" Bickford, s.p.d., t. a.
Hammers, forging, 600 to 6000 lbs.

Lathe, 16"x6" South Bend, q. c. g.
Lathe, 50"x34" Pittsburgh, q. c. g., m. d.
Pipe machines, 2" to 12".
Planers, 30" to 120".
Planer, rotary, 48" N. B. P., m. d.
Shaper, 24" Cincinnati, b. d.
Shaper, 24" G. & E., b. g.
Shear, No. 2 Lennox rotary bevel.
Shear, 10"x4" United, m. d.
Shear, 10"x1" Morgan.
Shear, 8"x1" Bertsch.
Shear, 8"x1" Morgan.

FOR SALE BY

B. C. Allen Machinery Co.,

510 W. Van Buren St., Chicago, Ill.

Blower, 2 1/2" pos. \$ 40.
Drill press, 20", sq. base. 58.
Drill press, 24", sta. head. 100.
Drill press, 22 1/2" Barnes, 4 sp.. 675.
Drill press, Baker heavy duty.
Drill press, Bickford 2 1/2" radial.
Drill press, Mueller 6" pl. radial 1150.
Gear cutter, No. 3 B. & S. auto. 500.
Hack saw, Peerless 9x9. 325.
Lathe, 14"x 6" Putnam. 125.
Lathe, 16"x 6" Peerless. 135.
Lathe, 16"x 8" Bradford. 250.
Lathe, 17"x 8" Flather, q. c. g. 275.
Lathe, 20"x10" Monarch, q. c. g. 450.

Lathe, 22"x10" Porter. \$ 325.
Lathe, 42"x31" Putnam.
Lathe, 42"x22" Am. hvy. duty.
Lathe, 36"x30" American.
Lathe, 48"x24" heavy.
Lathe, 42"x12" Putnam, blocked to 56" \$ 650.
Miller, Whitney hand. 75.
Punch press, No. 2 solid back. 150.
Punch press, No. 4 inclinable. 425.
Punch & shear 4" Badger. 150.
Shaper, 15" Steptoe, crank. 125.
Shaper, 15" P. & W., crank. 225.
Square shears, 30", \$50; 36" 70.

FOR SALE BY

The Randle Machinery Co., 1723 Powers Street, Cincinnati, Ohio

ENGINE LATHES.

15"x 6" Flather, loose change. \$ 250.
16"x 8" Reed, loose change. 275.
20"x10" American, q. c., single pulley drive, geared head. 750.
22"x10" Niles, loose change. 400.
22"x18" Niles, loose change. \$ 700.
24"x12" Rahn-Larmon, quick change, taper attachment. 975.
26"x14" Putnam, semi-quick change, taper attachment. 1,200.

PLANERS.

60"x48"x16" Pond, 2 heads. \$1,750.
21"x24"x 6" Ohio, 1 head. 600.
31"x33"x 8" New Haven, 1 head. 450.
33"x32"x12" American, 2 heads. 1,250.
36"x36"x14" American, 2 heads. 1,350.
Pedrick & Ayer open side, planes 30" wide, bed 11' long. 1,000.

MISCELLANEOUS.

Bolt cutter, Acme 4" sgl. hd. \$ 750.
Boring mill, 60" Niles vert., d. c. motor drive, with mtr. 750.
Drill press, 28" Cincinnati upright, b. g., single pulley, gear box drive. 475.
Drill press, 45" upright, back geared, power feed. 300.
Drill press, 24" Aurora upright, back gear, pwr. fd. 275.
Grinder, No. 60 Hald cylinder 750.
Miller, No. 2-B heavy Brown & Sharpe, sgl. pulley drive \$ 950.
Miller, No. 3-B Milwaukee, single pulley drive. 1,150.
Radial drill, 6" Niles full univ., d. c. motor dr., with motor. 750.
Shaper, 12" Pratt & Whitney crank, traveling head. 300.
Shaper, 24" Barker, b. g. crank 675.
Turret lathe, 24" Gisholt, d. c. motor drive, with motor. 500.

Many other bargains. Send us your requirements.

Surplus Equipment Available in Chicago District

Immediate Delivery—Very Low Prices

By Interstate Iron & Steel Co.,

104 So. Michigan Ave., Chicago, Ill.

- No. 19—19—20 COLD ROLLING MACHINES, designed to roll Oval wire. One take up is not available. Can furnish B/P to interested parties.
- No. 21—FOUR CAST STEEL POTS, steel annealing pots, 22 $\frac{1}{2}$ x6 $\frac{1}{2}$ for 16" wire coils. Three are new, one slightly used.
- No. 1—1 Shaper, Smith-Silk, 16" stroke—fair condition.
- No. 4—1 Drill, Dawson & Goodwin, 18" round table, No. 3 Morse taper spindle, fair shape.
- No. 5—1 Steam Hammer, 850 lb., 100 lb. steam pressure, first-class condition.
- No. 2—1 Prescott Pump, single type, size 14x9x18, 150 lbs.
- No. 3—1 Scale, automatic Howe, serial 941283, cap. 3500 lbs.
- 1—125 k. w. Milwaukee Electric Co. belt driven Generator, 220 volts, type A100 No. 3838, 470 to 575 r. p. m., compound wound, with slide rails and 40" diam. x 20" face pulley, d. c.
- 1—225 k. w. Crocker-Wheeler Generator, 250 volts, type C. C. D., size 275 D, 900 amps., 450 r. p. m., code No. SO3497, Mfg. No. 18. Compound wound, 3 bearings, slide rails and 34" dia. x 32" face pulley.
- 1—500 h.p., 3 phase, 60 cycle Crocker-Wheeler Motor, size 131 A.Q., 440 v., 600 amps., 450 r.p.m., with slide rails & 40" diam. x 32" face pulley.
- 2—Lloyd-Booth Clipping Shears, 12" blade, with fly-wheels and tight and loose pulleys, alligator type, will shear up to 1 $\frac{1}{2}$ " sq. soft steel.
- 3—Arthur Meeker Scrap Shears, 18" blade, with fly-wheels and pulleys, alligator type, will shear up to 2" sq. soft steel.
- 4—Doelger & Kirsten, Milwaukee Shears No. 1 $\frac{1}{2}$, with 24" knives, steel frame and lever and dbl. grd., suitable for shearing up to 1 $\frac{1}{2}$ sq. soft steel. Equipped with 5 h.p. 220 volt. d. c. Allis-Chalmers Motors.
- 1—Class E, 6-ton Whitcomb Gasoline Motor No. 429, 6 $\frac{1}{2}$ x7" cylinders, manufactured by Geo. D. Whitcomb Co., Rochelle, Ill.
- 3—3 Gridley Automatic Turret Lathes, sgl. spdl., serial numbers 2240-2245 and 3946. Manufactured by the National Acme Co., Windsor, Vt. Belt driven. Weigh about 3000 lbs. each.
- 5—1—600 lb. American Steam Hammer.
- 6—3 Sets (6) 36" Blair Valves, Blair reversing mechanism hydraulically operated, B. P. 1017-1020-A.
- (7)—1—Gog Press, G. A. Hogg Iron & Steel Co.
- (8)—1—No. 28 S. Lakewood Milwaukee Chain Drive Concrete Mixer, 28 cu. ft. cap., mixed concrete, equipped with batch hopper and mounted on steel platform, back geared, clutch with pinion for operation by 25 h. p., 730 r. p. m. motor, but less motor.
- (10)—6—No. 2 Swing Frame Grinders, motor driven, complete with 7 $\frac{1}{2}$ h.p., d. c. motor, automatic starter, safety collars, etc. Bridgeport Safety Emery Wheel Company.
- (12)—1—Sullivan Air Compressor No. 3618, single stage door, class WG-3, belt driven, complete less belt and motor. Sullivan Machinery Co.
- (13)—1—54" Blower, 39" diam. intake, 29"x30" outlet. B. F. Sturtevant Co.
- (15)—1—2 h. p. Westinghouse Motor No. 1, type "S" shunt wound, 220 v., 21 amp., 1200 r. p. m., style No. 112666, field serial 668052.
- (17)—1—Electric Brake, type Q-43-46-F, 75 h. p., 230 volt, for standard crane service, made by the Electric Controller & Mfg. Company.
- (19)—1—25 h.p., 220 v., d. c. Ry. type 12 A, ser. wound, Westinghouse Mtr.
- (20)—1—75 h.p., 220 v., d. c. Ry. type 76-D., ser. wound, Westinghouse Mtr.
- (21)—1 Spare Armature for above with bearings and housings.
- (22)—1 Wall Drill Press, complete, Advance No. 13.
- (23)—12—4" Crane Co's Stand. Cast Iron Flanged Pop Safety Valves, 144 lb.
- (9)—300—24"x2"x2" Carborundum Grinding Wheels, 4" taper, 6" flat spot, grain 14-G, grade D-1190.
- (11)—1—Dust Collecting System for No. 3 Swing Frame Grinders, consisting of one unit for 12 to 16 grinders, complete with motor, etc., Cyclone Blow Pipe Co.

For Quick Clean-Up

—at Unheard of Low Prices

FORGING MACHINES

1-1½" and 3".
Rock River, Standard and Cleveland Bulldozers.

HAMMERS (BOARD)

400, 600, 800, 1000, 2000, 2500 and 3000 lb. Bliss and Chambersburg.

HAMMERS (STEAM)

300 lb. Post.
600 lb. Massillon, s. f.
900 lb. Bement, s. f.
1000 lb. McDougal & Potter, s. f.
1500 lb. Chambersburg, d. f.
2000 lb. Chambersburg, d. f.
2500 lb. Chambersburg, d. f.
4000, 6000, 10,000 & 12,000 lb. Bement.

PUNCHES AND SHEARS

Pels 1-Beam shear, capacity 15".
6"x6"x1" Cleveland Angle Shear.
6' Long & Allstatter Gate Shear, cap. 1", 36" thr.
2½" cap. Chicago Alligator Shear.
5" cap. Carlin Alligator Shear.
Cleveland sgl. end, 4" cap., 20" thr.
Cleveland sgl. end, 2"x1" cap., 24" thr.
Cleveland sgl. end, 1½" cap., 2½" thr.
Cleveland sgl. end, 1½" cap., 36" thr.
Cleveland sgl. end, 1½" cap., 48" thr.
No. 8 Whiting single end, 1½" capacity, 42" thr.
Above Motor Drive with arch. jaws.

SHAPERS

14", 16", 20", 24", G. & E. & Rockford.
24" Norton Draw-Cut Shaper.

STRAIGHT SIDE PRESSES

D-201, DG-55, DG-56, E-57 Ferracute.
No. D, L. & A. Heavy Duty Press.
No. 6 American, Open Back Inc.

MILLERS

No. 3-H LeBlond, plain.
No. 15 Garvin, plain.
No. 21 Garvin, plain.
No. 2 Pratt & Whitney, vertical.
No. 3 Brown & Sharpe, vertical.
No. 5-B Becker, vertical.
No. 5-C Becker, vertical, s. p. d.
No. 6 Becker, vertical.
No. 2½ Hendey Mfg.
No. 7 Becker.
24"x24"x12" Ingersoll.

LATHES

11"x 5' Myers.
12"x 5' Vernon, q. c. g., t. a.
16"x 6' Putnam, t. a.
18"x 6' Springfield, t. a.
19"x10' LeBlond, crankshaft.
20"x 8' American, q. c. g.
20"x10' Bradford, b. g.
20"x 8' Cincinnati, b. g.
21"x12' LeBlond, q. c. g.
24"x12' American, q. c. g.
30"x16' LeBlond, q. c. g.
36"x32' LeBlond, q. c. g.
46"x40' Pond, h. d.
60"x40' Fifeild, h. d.
68"x40' Pond, h. d.
96"x40' Fifeild, h. d.

GRINDERS

16"x68" Landis Crankshaft Grinder.
16"x36" Landis Universal Grinder.
26"x96" Landis Plain Grinder.

PUMPS AND AIR COMPRESSORS

120 cu. ft. Sullivan Horiz. Belt.
250 cu. ft. Union Horiz. Belt.
275 cu. ft. Gardner Portable.
600 cu. ft. Ingersoll, Steam.
1750 Laidlaw-Dunn & Gordon, Belt.
1850 Sullivan, Steam.
2000 C. P. T. Steam.
750 gal. Wheeler Fire Pump.
3½"x10" Vert. Triplex Hyd. Pump.
7"x8" Dean Vertical Triplex.
9"x10" Gould Vertical Triplex.
9"x5½"x12" Dean Duplex.
10"x12"x16" Marsh Vacuum Pump, Steam.
14"x10½"x10" Worthington Duplex, Steam.

PRESSES

No. 7-B, 74½, 75½, 77½, 79½ Bliss.

MISCELLANEOUS

Allen Yoke Riveters, various sizes.
6' Bending roll, cap. ½".
1½", 2", 2½" National Bolt Cutters.
2", 4", 6", 8" and 12" Pipe Machines.
Standard Cooper and Notcher.
Cleveland Horiz. Rail Straightener.
3½" Morris Plain Radial Drill.
24" Steidle Turret Lathe, 6" hole.
15 lb. Bradley Helve Hammer.
80 lb. Bradley Helve Hammer.
500 lb. Bradley Trip Hammer.
600 lb. Beaudry Power Hammers.

Harris Brothers Co.

35th and Iron Sts., Chicago

LARGEST STOCK IN THE EAST

New and Used High Grade Modern MACHINE TOOLS

Guaranteed At Prices to Net You a Worth While Saving

BORING MILLS

- 4—Bullard 24" New Era type, vert.
- 2—Niles-Bement-Pond 52", vert.
- 1—Landis No. 35 horiz., floor type.

DRILLS—Upright and Radial

- 3—Snyder 28" vertical.
- 1—Minster D-3, heavy duty.
- 4—3 $\frac{1}{2}$ " Mueller Radials, S. P. D.
- 1—Foote-Burt 4 $\frac{1}{2}$ " 4-spindle, rail.
- 2—New Turner No. 3, vert. turret.
- 1—N.-B.-P. 9 $\frac{1}{2}$ " Ridgeway, motor drive, plain radial.
- 1—Western 6", plain radial.
- 1—Baush 6".

DRILLS—Multiple Spdl., Rect. Head

- 1—Natco No. 14, q. c. g.
- 1—Natco No. 30, 12 spindle.
- 2—New Baush No. 3, 21 spindle.
- 1—New Baush No. 4, 56 spindle.
- 1—Fox, 6 spindle.

PLANERS

- 7—Putnam 26x26x8', 2 heads.
- 1—Woodward & P. 36x36x12', 4 hds.
- 1—Putnam 45"x49"x12', 2 hds., m.d.
- 2—Cleveland 30x30x8 and 36x36x8 openside, NEW.

MILLERS—Plain, Mfg., Univ. & Vert.

- 2—Milwaukee No. 1 $\frac{1}{2}$ plain.
- 1—Brown & Sharpe No. 2 plain.
- 1—Milwaukee No. 3-B universal.
- 1—Milwaukee No. 3-B plain.
- 2—Briggs type B.
- 2—Taylor & Fenn vertical.
- 1—Becker No. 4B and No. 5C vert.
- 1—Becker 'C' vertical.
- 1—Becker No. 2H, vertical.
- 1—Newton No. 1 duplex.

GRINDERS

- 1—Blanchard No. 16, motor driven.
- 1—Springfield-B., 12x12x48 vert.
- 1—Brown & Sharpe No. 14 plain.
- 16—Cincinnati No. 2, 12x36.
- 4—Norton 6x32 & 2—Norton 10x36.
- 1—Fitchburg 12x54.
- 1—Norton 16x36.
- 4—Heald Nos. 60, 65 & 70.
- 3—Heald rot. sur. Nos. 210, 255, 260.

PRESSES

- 2—Toledo No. 53, flywheel.
- 4—Toledo No. 55 & No. 55 $\frac{1}{2}$, grd.

GEAR CUTTERS

- 2—Barber-Colman No. 2.
- 4—Hercules 8".
- 2—Brown & Sharpe 3x26.
- 1—Brown & Sharpe No. 13.
- 1—Gould & Eberhardt 60", spur.
- 1—Fellows Nos. 61, 6 & 612.
- 1—Gleason 6", 11" & 18", bevel.

TURRET & SCREW MCHS.

- 1—Foster No. 1-B turret.
- 1—Warner & S. Nos. 2-A and 3-A.
- 3—Foster No. 2-B turret.
- 1—Warner & Swasey No. 4, p. f.
- 1—Warner & Swasey No. 2, p. f.
- 1—New Foster No. 10 turret.
- 4—Greenlee, 2 $\frac{1}{2}$ x26" turret.
- 4—J. & L. 2x24.
- 1—J. & L. 2-spindle turret.
- 1—J. & L. 3x36" flat.
- 1—Acme 1 $\frac{1}{2}$ " turret.
- 2—P. & W. 1x14 screw.

SHAPERS and SLOTTERS

- 1—G. & E. 16".
- 3—New 16" Davis, s. p. d.
- 1—American, 28".
- 1—Newton 10" slotter.
- 1—Pratt & Whitney 10" slotter.

AUTOMATIC SCREW MCHS.

- 8—New Britain No. 24.
- 2—Cleveland 2 $\frac{1}{2}$ " Model A.
- 15—Cleveland $\frac{1}{2}$ " to $\frac{3}{4}$ " capacity.
- 1—Cleveland $\frac{1}{2}$ " to $\frac{1}{4}$ " capacity.
- 7—Gridley 4 spindle, cap. 14".

LATHES

New Star Lathes, all sizes with all attachments.

- 12—New South Bend 16x6 and 18x8 gap; 21x14.
- 10—New South Bend 15x5.
- 1—LeBlond 26x12, univ. crankshaft.
- 1—Walcott 26x14, 6", q. c. g.
- 1—Johnson 30x12, motor dr.

MISCELLANEOUS

- 1—Acme bolt cutter, 3" cap., motor.
- 1—National bolt cutter, 2-spdl., 1".
- 1—Acme 1" cap. dbl. hd. bolt cutter.
- 1—Landis 1" bolt cutter, dbl. hd.
- 1—Landis 1 $\frac{1}{2}$ " cap., 3-spdl. bolt cut.
- 1—Landis 1 $\frac{1}{2}$ " bolt cutter, dbl. hd.
- 1—Landis 1 $\frac{1}{2}$ " 3-sp. mtr. dr. bolt cut.

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MOREY AND CO., INC. 405 Broome St.,
NEW YORK, N. Y.

Railroad Specials

**New Combination Journal and Axle Turning Lathes
New & Used Nos. 2 & 3 Axle Lathes, Center Drive**

VERTICAL BORING MILLS.

- 1—24" Bullard, 1 turret, 1 side head.
- 1—30" Rogers & Hemphill, 1 turret hd.
- 3—36" Niles, 2 swivel heads.
- 1—42" Baush, 2 swivel heads.
- 3—52" Baush, 2 swivel heads.
- 1—84" Niles, 2 swivel heads.

HORIZONTAL BORING MILLS.

- 1—60" x 14' Featherstone, Lathe type.
- 1—96" x 14' Featherstone, Lathe type.
- 1—30" Waterman, 4" Bar, 2 facing hds.
- 1—No. 2 Niles, 4" Bar.
- 2—Binsee, 3 1/2" Bar.
- 1—Binsee, 2 3/4" Bar.

CAR WHEEL BORERS.

- 2—48" Niles, with Crane.
- 1—50" Sellers, with Crane.
- 3—48" Putnam, with Crane.

GRINDERS.

- 6—6 x 20 Fitchburg Automatic.
- 6—6 x 20 Fitchburg Plain.
- 5—10x30 Fitchburg Automatic.
- 4—10x30 Fitchburg Plain.
- 4—12x36 Fitchburg Plain.

LATHES.

- 1—New 96" x 40' Fifeild.
- 1—New 50" x 20' Fifeild.
- 1—New 60" x 40' Fifeild.
- 1—Used 36" x 26' Putnam.
- 1—Used 24" x 24' Putnam.
- 1—New 32" x 16' Advance.
- 1—Used 26" x 16' L. & S., M. D.
- 1—Used 48" Niles Car Wheel.
- 1—New 30" Oliver, Geared Head.
- 8—Used 26" x 10' Pond.

LATHES—Continued.

- 4—New 24" x 12' Cisco.
- 2—New 26" x 11' Wickes.
- 2—Used 18" x 10' Lodge & Shipley, Geared Head.
- 2—New 18" x 8' Oliver, Q. C., B. C.
- 2—Used 18" x 8' Lodge & Shipley, Geared Head.
- 1—16" x 8' Advance, Q. C., B. C.
- 5—Used 28" Gisholt Turret.
- 15—Used 3 1/2 x 60 Fitchburg Lo-swing.
- 2—Used 8x108 Fitchburg Lo-swing.
- 1—5" Bardons & Oliver Heavy Duty Turret.

MISCELLANEOUS.

- 1—56" x 60" x 12' Gray Planer, 2-hds.
- 1—48" Putnam Planer, 2 heads, arranged for side head.
- 1—30" x 30" x 12' Planer Ohio, 1-Hd.
- 1—24" x 24" x 6' Powell Planer, 1-Hd.
- 1—12-spd. P. & W. Mult. Drill, 1 1/4".
- 7—No. 12 P. & W. Auto. Millers 12".
- Cleveland - Gridley - National Acme-B. & S. Automatics.
- 2—New No. 1 1/2 American Milling Machines, Plain & Universal.
- 3—18" Gleason Gear Generators.
- 4—No. 4 Warner & S. Screw mches.
- 1—Ingersoll-Rand Imperial type No. 10 Air Compressor, 1200' Capacity.
- 1—1 1/4 Ajax Forg. mch., cont. motion.
- 1—3-spindle Foote Burt Drill.
- 4—4D Colburn Heavy Duty Drill.
- New Presses 58-59-59 1/2 Toledo Str. side double fly wheel.
- 1—No. 7 M. Amer. Can Str. Side Grd.
- 10—No. 3 Stecher Screw Machines.
- 1—Used 14" Betts Slotter.
- 1—Used 10" New Haven Slotter.

*One Thousand Machines in Stock—Metal and Woodworking.
We have machines for every purpose. Mail us your inquiries.*

DAVID A. WRIGHT, Inc.
601 W. Monroe St., CHICAGO, ILL.

Second Hand Machine Tools

FOR SALE BY

The E. A. KINSEY COMPANY, Cincinnati, Ohio

Branches: Dayton, Hamilton, Columbus, Louisville, Indianapolis.

Brown & Sharpe

- No. 1 $\frac{1}{2}$ Plain Milling.
- No. 2 Plain Milling.
- No. 2A Universal Milling.
- No. 2 Surface Grinder.
- No. 16 Plain Grinder.
- No. 3-26" Gear Cutter.
- No. 13 Spur & Bevel Gear Cutter

Drilling Machines

- 20" Superior Upright w. & l.p.f.
- 22" Aurora Upright Back Gear,
- Power Feed, Sliding Head.
- 20" Barnes 4-spdl. Style B Gang.
- 2 $\frac{1}{2}$ " Gang Radial.
- 3" Hilbert Plain Radial.

Turret and Screw Machines

- 3" Cleveland Auto.
- 2" Cleveland Auto.
- 12" Plain Head Warner & S.
- 16" Geared Head Warner & S.
- No. 2 Plain Head Warner & S.
- No. 4 Fric. Head Warner & S.
- 1 $\frac{1}{2}$ " P. & W. Wire Feed.

Engine Lathes

- 14x8 Lodge & S.Q.C.G. Tap.Att.
- 15x6 Von Wyck Standard.
- 16x8 Greaves-Klusman Standard.
- 18x10 Rahn-Carpenter Standard.
- 20x8 Prentice Standard.

Grinders

- LeBlond Universal Cutter.
- Cincinnati Universal Cutter.
- 12" Wet Tool.
- 10"x20" Landis Pl. Cylindrical.

Metal Planers

- Pond 26 $\frac{1}{2}$ x26x6.
- Gray 30x30x8.
- Niles 42x42x12, 2 heads.
- Gray 56"x62"x12" 4-heads.

Miscellaneous

- No. 1 $\frac{1}{2}$ Knight Vert. Dr. & Mill.
- No. 2 LeBlond Plain Miller.
- No. 4 LeBlond Plain Miller.
- No. 4 Cincinnati Plain Miller.
- No. 2 Cincinnati Plain Miller.
- 13x16 Peerless High Speed Saw.

Bargains In Used Tools

BORING MILLS

- 30" and 36" BULLARD boring mills, 3-jaw chuck tables.
- 36" GISHOLT turret boring and turning mill.
- 60" ROGERS-HEMPHILL boring mill, 2 heads.
- 24" bar LUCAS horizontal, gearbox drive.

DRILL PRESSES

- 28" SIBLEY & WARE, sliding head, b. g., p. f.
- 6" GANG radial, gearbox drive.
- 3" AMERICAN sens. radial.
- No. 14 Natco 10-sp. (bored for 18 spindles.)
- No. 15 HARRINGTON 4-spindle rail type, 1 $\frac{1}{2}$ " capacity.

GEAR CUTTERS

- No. 12 BARBER-C. hobbers (2).
- No. 6 FELLOWS gear shaper.

MILLING MACHINES

- No. 2 ROCKFORD universal, also plain.
- No. 3 CINCINNATI vertical.
- No. 2 CINCINNATI universal, all geared feeds.
- Model "A-B" BECKER vert.

PLANERS

- 30"x30"x 6' POND, 1 head.
- 32"x32"x12" GRAY, 2 heads.
- 36"x36"x10' WILSON, 2 heads, like new.
- 36"x30"x12" GORTON, 2 heads.

PRESSES

- No. 5 LOSHBOUGH-J., o. b. i.
- No. 6 geared WALSH, s. s.

The above is small part of our stock. Send for List No. 102.

STOCKER-RUMELY-WACHS CO.

117 N. Jefferson St.,

Chicago, Ill.

A Big Press —

**No. 79½ Bliss Straight Side
Steel Tie Rod Frame
9" Stroke—Belt Drive
Weight, 95000 lbs.
Condition, First-Class**

Some items in stock for immediate delivery:

No. 2-B Brown & Sharpe Plain Miller, sgl. pulley drive.
No. 2-B Heavy Brown & Sharpe Plain Miller, sgl. pulley dr.
No. 3 Cincinnati Plain Millers (three).
No. Kemp Smith Plain Miller.
No. 3 Heavy LeBlond Plain Miller.
16" Stockbridge Shaper.
20" Rockford Back Geared Shaper.
24" Kelly Back Geared Shaper.
30"x30"x8" Ohio Planer, heavy type.
36"x36"x15" Betts Planer, two heads.
Bolt Cutters, 1½" to 4", Acme and Standard.
No. 2 Landis Universal Grinder, 12"x32", hardly used.
6"x32" Norton Plain Grinder.
14"x72" Norton Plain Grinder.
16"x48" Landis Crank Pin Grinder, almost new.
Nos. 11 and 12 Natco Multiple Drills.
¼" Schuster Wire Straightener.
No. 2 Stecher Die Maker's Arch Screw Press.
No. 2-G Brown & Sharpe Auto Screw Machine.
⅜-½" Cleveland Model B Screw Machines, latest type.
⅝-⅞" Cleveland Model A Screw Machines, latest type.
2" Cleveland Model A Screw Machines, latest type.

24" and 36" Bullard Vertical Turret Lathes

Our list has the other items. Ask for "Yellow List No. 51"

A. D. WHITE MACHINERY CO.

108-114 N. Jefferson St.,

CHICAGO

Are You Thinking—

Of installing a Radial Drill? If so, the following machines are REAL bargains:

- 1—2½' Standard type, heavy duty, MUELLER radial drill, gear drive.
- 1—3' Standard type, heavy duty, MUELLER radial drill, gear drive.
- 1—4' Standard type, heavy duty, MUELLER radial drill, gear drive.

Prices will arouse interest

Write and Satisfy yourself

The Mueller Machine Tool Company

Radial Drills and Lathes

ESTABLISHED 1902

CINCINNATI, O.

A Few Specials

PRICED TO MOVE

Slightly used. With a good-as-new, money-back guarantee

36" Colburn Heavy Duty Drill
No. 14 Natco Drill
4-Spindle Avey No. 2 Power Feed
10x36 Norton Plain Grinder
14x36 Norton Plain Grinder
No. 4 Landis Universal Grinder
No. 70 Heald Internal Grinder
36" Gisholt Vertical Turret Lathe
28" Cincinnati Duplex Miller
2¾-3¼ Cleveland Model A Automatic

Above is partial list—Send us your inquiries

Mid-West Machine Tool & Supply Co.

321-323 E. Fourth Street

Davenport, Iowa

NEW 3 PHASE MOTORS CHEAP. 3 H. P. \$57.50; 5 H. P. \$67.50

LATHES

9" to 13" Barnes, h. s., cp. r., new.
12"x 5' Cleveland, geared head.
14"x 8' Young.
14"x 6' Hamilton, grd. hd., motor dr.
14"x 8' Sidney, double back geared.
14"x10' Reed-Prentice.
16"x 8' Sidney, double back geared.
18"x10' American, quick change.

20"x 8' American, geared head.
20"x10' Prentice, taper.
24"x24' Prentice, with raising block.
25"x12' Sidney heavy duty.
25"x14' Schumacher & Boye.
25"x 8' Bridgeford, heavy duty.
Ames precision bench, 1" & 1" cap.
8x60" & 10x72" Fitchburg Lo-Swing.

TURRET LATHES and SCREW MACHINES

11" Tilted turret hand screw mche.
1" and 1 1/2" Mulholland.
2x24 & 3x36 J. & L., dbl. equipment.
No. 3-B Foster, 5" capacity, new.

6" Gridley auto., single spindle.
Nos. 52 and 56 National Acme.
1" P. & W. automatic, single spdl.
21" Gisholt.

SHAPERS

14" Niles, traveling head.
10" Steptoe, crank.
16" American, tool room.

16" & 24" Barker, b. g. crank.
16" Smith & Mills, b. g. crank.
20" Walcott, geared.

PLANERS

24"x24"x 6' Gray.
32"x32"x 8' Gray.

36"x36"x10' Cincinnati, 2 heads.
60x60x17' Betts, 2 heads.

PRESSES

Nos. 3-A & 6-A Willard inclinable.
No. 1 Toledo inclinable.
Nos. 1 1/2, 2, 2 1/2 & 4 Robinson.

Emco, bench, for radio parts.
No. 35 Niagara straight side.
Perkins, dbl. housing, wt. 4,000 lbs.

DRILLS and RADIALS

3' and 3 1/2' Silver, new, gear box.
3' & 4 1/2' Morris plain gear box.
2 1/2' Canedy-Otto plain, new.
4' Universal Radial Drill Co. plain.
Sensitive 1, 2, 3, 4 and 6 spindle.

22", 24", 26", 28" and 32", sliding hd.
20"-24" & 26" Barnes, all geared.
4-spindle Sigourney sensitive.
4-spindle Reed sensitive.
Electric drills, Thor, all sizes.

MILLING MACHINES

No. 2 Kemp Smith universal.
U. S. and Whitney hand.
No. 25 Becker plain, power feed.
No. 1 B. & S. universal.
Nos. 2-A & 4-B Becker vertical.

No. 3 LeBlond, with vertical attach.
No. 2 H Brown & Sharpe plain.
Briggs type "A" high duty, 24x8 table.
No. 7 Becker Lincoln type.
Oesterlein 24x7 1/2 x18 plain.

GRINDERS

Nos. 1, 3 & 78 W. & M. surface.
No. 2 W. & P. 10x30 universal.
6"x15" Fitchburg plain.
12x36 Cincinnati universal.
12x42" & 16"x30" Landis plain.
12"x72" Brown & Sharpe plain.
36" and 66" Yates plate.

Perfection cylinder.
No. 60 Heald cylinder.
Nos. 2 & 3 Ohio universal & tool.
No. 4 Gardner 20" double disc.
No. 20 Bryant, chucking.
B. & S. No. 24 dbl. spdl., cylinder.
Capital internal, new, 2"x2".

MISCELLANEOUS

Band saw, metal, Klemm.
Band saws, Napier 4"x4", 10"x10".
Bending rolls, 7' for 1" plate.
Boring mill, Bullard 34" turret hd.
Boring mill, 54" & 60" Colburn, 2 hds.
Brake, 10", 18-gauge metal.
Broaching machine, No. 3 LaPointe.
Cold saw, Burr, 3" capacity.
Compressors, 5x4, 8x8 and 12x10.
Drawing tables, adjust., 42"x6" top.
Gear cutter, 26" No. 3 B. & S.
Gear millers, Bilton No. 1. (5).
Hammer, 40 lb. Bradley, helve.
Hammer, 150 lb. Standard drop.

Oil separator, Springfield.
Pipe machines, 2", 4", 6" & 12".
Pumps, Gould triplex, 6"x8" & 7"x5".
Punch & shear 1/2 by 1/2, 10" throat.
Riveter, 1" Schuster.
Riveting hammers, No. 3-A h.sp. (2).
Scale, 1500 lb. Toledo, dial type.
Sceleroscopes, Shore, (2).
Shear, 5' Robinson, for 10 gauge.
Shear, No. 20 Quickwork, 30" throat.
Shear, circular, Pettingell 60".
Slotter, 18" Rement-Miles.
Tapping mche., 1" Rickert-Shafer.
Threading mche., W. & P. 2-spindle.

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LATHES

- 13—Porter-Cable.
- 10—34" Fitchburg.
- 8—8" Fitchburg.
- 1—Bogart Crankshaft.
- 1—26" LeBlond Crankshaft.
- 1—10"-12"x8" Pratt & Whitney.
- 1—Streit Pulley.
- 5—13"x8" Willard.
- 1—14"x8" Fay & Scott.
- 7—14"x8" Rockford.
- 2—14"x8" Carroll-Jamieson.
- 1—16"x8" Carroll-Jamieson.
- 8—17"x6" LeBlond Pl. Turning.
- 1—17"x19"x8" Sidney.
- 5—18"x8" Boye & Emmes.
- 1—18"x20"x8" American, gd. hd.
- 10—19"x8" LeBlond.
- 2—19"x10" LeBlond Univ. Turret.
- 12—20"x8" LeBlond.
- 65—20"x8" American
- 1—20"x10" Lodge & Shipley.

MILLERS

- 45—No. 6 Whitney.
- 50—Garrigus.
- 22—No. 1 Van Norman.
- 61—No. 34 Fox.
- 1—No. 22 Garvin.
- 2—Steptoe, Hand.
- 34—12" Cincinnati.
- 3—No. 14B Milwaukee.
- 2—No. 2 Rockford, S. P. D.
- 2—No. 28 Ohio.
- 7—No. 2-B Brown & Sharpe.

GRINDERS

- 8—Heald Drill.
- 1—No. 6-28 Gardner Disc.
- 1—No. 16 Besley Disc.
- 1—Modern Internal.
- 1—No. 10-A Bryant Internal.

BORING MILLS—Vertical

- 7—24" Bullard Vert. Turret Lathe.
- 3—24" Bullard New Era.
- 2—30" Gisholt.

BORING MILLS—Horizontal

- 1—No. 31 Lucas.
- 3—No. 1 Barnes Horiz., 2 Heads.
- 3—Foote-Burt, 3" Bar.

DRILL PRESSES

- 1—24" Barnes Camel Back.
- 1—36" Snyder.
- 1—No. 121 Baker.
- 1—No. 315 Baker.
- 1—No. 24 Foote-Burt.
- 1—No. 25 Foote-Burt.
- 2—2 Spindle Henry & Wright.
- 1—3 Spindle Henry & Wright.
- 1—4 Spindle Henry & Wright.
- 10—6 Spindle Allen.

SHAPERS

- 1—12" Smith & Mills.
- 1—15" Potter & J. Tool Room.
- 3—16"—20" Ohio.

GEAR CUTTERS AND HOBBERS

- 1—No. 00 Schuchardt & Schutte.
- 8—No. 1 Farwell.
- 1—No. 5 Lees-Bradner.
- 3—No. 1 Schuchardt & Schutte.
- 2—24" Gould & Eberhardt.
- 1—30" Flather.
- 7—No. 6 Fellows.
- 1—No. 13 Brown & Sharpe.
- 3—No. 3, 26" Brown & Sharpe.
- 3—36" Brown & Sharpe.
- 1—No. 612 Fellows.
- 1—No. 615 Fellows.

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Mansfield, Ohio

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Air Compressor, Chicago 9x11, M. D.
Air Compressor, Ingersoll-Rand 14x12, M. D.
Ajax Bulldozer No. 8-BW.
American Lathe, 24"x12", Medium Pattern.
Barrett 36" Cylinder Boring Mill.
Bath Universal Grinder No. 2½.
Bausch Vertical Boring Mill, Two Heads, 60".
Bolt Cutters: Acme, National & Landis, Sgl. & Dbl.
Bending Rolls, 16'-1" Plate, M. D., Drop End.
Bull Riveter, 120 Ton Hanna.
Bullard Vertical Boring Mill, 36" New Era.
Bullard Maxi Boring Mills, 1-42", 5-54", 85% to New.
Cleveland Horizontal Boring Mill No. 1.
Colburn Boring Mill 54" Rapid Traverse.
Defiance Hydraulic Tire Press No. 4, 60 Ton.
Federal Butt Welder, 3-60-440 V., 65 K. W.
Gisholt Turret Lathe, 28" Swing.
Heald Ring Grinder, 16" Magnetic Chuck, No. 260.
Hendey Lathe 20"x8", Geared Head.
Hurlburt-Rogers Cutting-Off Machine, 4" capacity.
Hydraulic Press, 400-ton Niles, 10' between side bars,
30' between centers, motor driven pump.
J. & L. Turret Lathes, 3x36 Sgl. & Dbl. Spindle.
King Boring Mills, 2-42", 3-52", 90%.
Libby Lathes, 18 and 22" Swing.
Lodge & Shipley 36"x18" Patent Head Lathe.
Lodge & Shipley 38"x20" Geared Head Lathe, M. D.
Low Swing Lathe, 4"x108".
Metalwood Hydraulic Forcing Press No. 20.
Metalwood 65 Ton Hydraulic Straightening Press.
Milwaukee Miller No. 3B, Universal.
Niles Bending Rolls 12', 1" capacity, Drop End.
Norton Plain Grinder 14"x72".
Norton Plain Grinder 10"x52".
Norton Crankshaft Grinder 22"x34"x120".
Oliver Band Saw 36", Iron Tilting Table.
Plate Planer, No. 1 Cleveland, capacity 1" plate by 23',
arranged for motor drive.
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Of Machine Tools and Plant Equipment of the

RUSSEL MOTOR AXLE CO. at NO. DETROIT, MICH.

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No. 6 Fellow gear shaper. | 6", 11", 18" Gleason generators.
 No. 612 Fellow gear shaper. | G. & E. gear roughers.

SHAPERS

20" R. A. Kelly shaper.

GRIDLEYS

1" to 14" Gridley multiple spindle automatic screw machines.
 2 1/2" to 4 1/2" single spindle automatic screw machines.

MILLING MACHINES

No. 0 LeBlond plain. | No. 5 Hendey Lincoln type.
 18" Cincinnati duplex. | No. 2 Cleveland plain.
 No. 3 Hendey Norton plain. | Model "A" Gooley & Edlund.

ENGINE LATHES

18"x 8' Hamilton. | 34"x 12' Reed.
 14"x 5' F. E. Reed. | 14"x 6' Pratt & Whitney.
 20"x 10' American.

TURRET LATHES

6-A Model 2 Potter & Johnston | Fitchburg Low-Sw. 3 1/2"x 60-3 1/2"x 80-8x 80.
 auto. turret lathe. | 1 1/2"x 8" & 3"x 36" Pratt & Whitney.
 Nos. 3, 4 & 6 Warner & Swasey. | 2"x 26" Pratt & Whitney.
 3"x 36" Jones & Lamson. | 7-A Chucking machines.
 24" Gisholt, 6" hole. | Fay Auto. 12" Plain and Taper.

RADIAL DRILLS

4' Drees, 20"x 30" table.

DRILL PRESSES

22", 25" & 28" Barnes single spdl. | 4-spindle Foote-Burt gang, 3" spdl.
 28" J. E. Snyder Co. | 4-spindle Foote-Burt gang, 3 1/2" spdl.
 28" Sibley Machine Tool Co. | 6-spindle multiple Baush
 Nos. 413 & 416 Baker Brothers. | 16-spindle multiple Bauson, b. d.
 No. 23 Foote-Burt 2-spdl. gang. | 24-spindle multiple Baush.
 22 1/2" Barnes 3-spindle gang.

PRESSES

Cleveland single end punch, 12" thr. | 15-ton Lucas geared force.

GRINDERS

10A Bryant internal. | No. 2 Gould & Eberhardt cutter.
 No. 1 Besly plain, universal table. | 12"x 42" Landis universal.
 No. 615 Fitchburg cylindrical. | No. 2-A Landis universal.

BORING AND TURNING MILLS

30" Gisholt boring mill. | 18" Cleveland horiz. boring mill.

MISCELLANEOUS

Nos. 3, 3A & 4 LaPointe broach. mch. | No. 2X Garvin auto. tapping mch.
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3 Phase, 60 cycle, 220 volts

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30 h. p. Fairbanks-Morse, 900 r. p. m.	30 h. p. Fairbanks-Morse, 1200 r. p. m.
15 h. p. Wagner, 900 r. p. m.	10 h. p. Fairbanks-Morse, 900 r. p. m.

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Zenz A. C. Arc Welder.

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Gear Shapers
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 Turret
 Speed
 Polishing
 Auto. Chucking & Turning
 Auto. Screw Machines
Milling Machines

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- 2—No. 314 Baker Heavy Duty Drill Presses.
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- 3—18"x12" Gould & Eberhardt Gear Hobbers.
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- 12—No. 6 & No. 63 Fellows Gear Shapers.
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- Walker Vertical Single Stroke Rotary Grinder.
- 2—No. 16 Blanchard Vertical Surface Grinders, M. D.
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- 2—16"x6' Lodge & Shipley Lathes, 3 step cone, qk. ch. gr.
- 1—18"x8' Lodge & Shipley Lathe, 3 step cone, qk. ch. gr.
- 3—21"x24"x10' LeBlond Heavy Duty Crankshaft Lathes.
- 4—21"x10' LeBlond Heavy Duty Automatic Lathes.
- 36"x14' Bridgeford Geared Head Lathe—2 carriages.
- 3—No. 4 Warner & Swasey Turret Lathes, G. F. H.
- 1—No. 6 Warner & Swasey Turret Lathe, G. F. H.
- 5—No. 4 Foster Turret Lathes, G. F. H.
- 5—No. 6 Foster Turret Lathes, G. F. H.
- 21" Gisholt Turret Lathe—2 carriages—3½" hole.
- 6—24" Gisholt Turret Lathe—2 carriages—6¼" hole.
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- 2—No. 4 Cincinnati H. P. Horizontal Millers.
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30" swing x 20' bed McCabe, Quick
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30" swing x 14' High Duty Lathe,
Quick Change.
24" swing x 14' bed Reed-Prentice
Quick Change.
Geared Head Lathe, Single Pulley
Drive, Taper.
42" Baush Boring Mill, 2 heads,
Quick Change.
24" Stroke, Niles-Bement-P. Slotter.
4' Arm Radial Drill with geared
speed box drive.
No. 2 Cincinnati Vert. Milling Mch.

18" Ohio Shaper.
20" Smith & Mills Shaper.
No. 6 Bliss Press.
Q & C Cold Cut-Off Saw.
50 lb. Mayer Bros. Hammer.
25 lb. Dupont Hammer.
No. 3 Cincinnati Milling Machine
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8x30 Modern Grinder.
No. 3 Baker Keyseater.

These Tools still set up in
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PLANERS

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26"x26"x 6' Niles, 1 head.
42"x36"x16' Detrick & Harvey,
open side.

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26/48 swing x 26' bed.
38"/60" swing x 32' bed—complete
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Attachment. Can also include
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- Balancing Ways**
Anderson Bros. Mfg. Co., Rockford, Ill.
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Abbott Ball Co., Hartford, Conn.
- Band Saw Machines, for Metal**
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Porter-Cable Machine Co., Syracuse, N. Y.
- Bars, Bronze, Cored and Solid**
Bunting Brass & Bronze Co., Toledo, O.
- Barrels, Tumbling**
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Bunting Brass & Bronze Co., Toledo, O.
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- Boring Bars, Cylinder**
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Apex Machine Co., Dayton, O.
Barber-Colman Co., Rockford, Ill.
Jacobs Mfg. Co., Hartford, Conn.
Scully-Jones & Co., 2012 W. 13th, Chicago
Titan Tool Co., Erie, Pa.
Westcott Chuck Co., Oneida, N. Y.
- Chucks, Drill and Tap**
Barber-Colman Co., Rockford, Ill.
Peter Bros. Mfg. Co., Algonquin, Ill.
Scully-Jones & Co., 2012 W. 13th, Chicago
- Chucks, Keyway Cutting**
Scully-Jones & Co., Ry. Exch. Bldg., Chicago
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Pedrick Tool & Machine Co., Philadelphia

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Dies, Self-Opening Adjustable
Rickert-Shafer Co., Erie, Pa.

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National Automatic Tool Co., Richmond, Ind.
United States Drill Head Co., Cincinnati

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Avey Drilling Machine Co., Cincinnati
Hurke Machine Tool Co., Cosneaut, Ohio
Reed Co., Francis, Worcester, Mass.
Rockford Drilling Machine Co., Rockford, Ill.
Taylor & Fenn Co., Hartford, Conn.

Drilling Machines, Horizontal
Rockford Drilling Machine Co., Rockford, Ill.

Drilling Machines, Multiple Spindle
Avey Drilling Machine Co., Cincinnati
Henry & Wright Mfg. Co., Hartford, Conn.
National Automatic Tool Co., Richmond, Ind.
Reed Co., Francis, Worcester, Mass.
Rockford Drilling Machine Co., Rockford, Ill.
Taylor & Fenn Co., Hartford, Conn.

Drilling Machines, Portable Electric
Independent Pneumatic Tool Co., 609 W. Jackson Blvd., Chicago
Stow Flexible Shaft Co., Philadelphia, Pa.
Strand Co., N. A., 5001 N. Lincoln St., Chicago
Wisconsin Electric Co., Racine, Wis.

Drilling Machines, Post
Henry & Wright Mfg. Co., Hartford, Conn.
Mueller Machine Tool Co., Cincinnati

Drilling Machines, Radial
Henry & Wright Mfg. Co., Hartford, Conn.
Mueller Machine Tool Co., Cincinnati
Taylor & Fenn Co., Hartford, Conn.

Drilling Machines, Sensitive
Avey Drilling Machine Co., Cincinnati
Burke Machine Tool Co., Cosneaut, Ohio
Henry & Wright Mfg. Co., Hartford, Conn.
Leland-Gifford Co., Worcester, Mass.
Reed Co., Francis, Worcester, Mass.
Taylor & Fenn Co., Hartford, Conn.
Wisconsin Electric Co., Racine, Wis.

Drilling Machines, Vertical
Avey Drilling Machine Co., Cincinnati
Henry & Wright Mfg. Co., Hartford, Conn.
Leland-Gifford Co., Worcester, Mass.

Rockford Drilling Machine Co., Rockford, Ill.
Taylor & Fenn Co., Hartford, Conn.

Drilling and Tapping Attachments
Barber-Colman Co., Rockford, Ill.
Henry & Wright Mfg. Co., Hartford, Conn.
Reed Co., Francis, Worcester, Mass.

Dust Handling Equipment
Knickerbocker Co., Jackson, Mich.

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Precision Truing Machine & Tool Co., Cincinnati, O.
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Feeders, Oil and Soda Water
New Britain Machine Co., New Britain, Conn.

Flexible Shafts
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Forgings, Hollow Bored
American Hollow Boring Co., Erie, Pa.

Furnaces, Heat Treating, etc.
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Furniture, Machine Shop
Kalamazoo Steel Goods Co., Kalamazoo, Mich.
New Britain Machine Co., New Britain, Conn.

Gauges, Piston and Piston Ring
Federal Products Corp'n, Providence, R. I.

Gauges, Thread
Federal Products Corp'n, Providence, R. I.

Gear Cutting Machines
Barber-Colman Co., Rockford, Ill.

Grinding Machines, Belt
Gallmeyer & Livingston Co., Grand Rapids, Mich.
Peerless Surfacing Machine Co., Troy, N. Y.

Grinding Machines, Bench
Rodine Electric Co., 2256 W. Ohio St., Chicago
Gallmeyer & Livingston Co., Grand Rapids, Mich.

Grinding Machines, Cutter, Reamer and Tool
Gallmeyer & Livingston Co., Grand Rapids, Mich.
Jarecki Mcbe. & T. Co., Grand Rapids, Mich.
Thompson Grinder Co., Springfield, Ohio
Wilmarth & Morman Co., Grand Rapids, Mich.

Grinding Machines, Cylinder
Whitney & Son, Baxter D., Winchendon, Mass.

Grinding Machines, Cylindrical
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Thompson Grinder Co., Springfield, Ohio

Grinding Machines, Die
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Jarecki Mcbe. & T. Co., Grand Rapids, Mich.
Thompson Grinder Co., Springfield, Ohio
Wilmarth & Morman Co., Grand Rapids, Mich.

Grinding Machines, Disc
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Porter-Cable Machine Co., Syracuse, N. Y.

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Wilmarth & Morman Co., Grand Rapids, Mich.

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Presses, Punch

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LaSalle Machine Works, 3013 S. LaSalle St.,
Chicago
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Punches and Dies

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Reamer Holders

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Riveting Machines

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Rod Cutters

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Screw Machines, Automatic

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Dickow Machinery Co., Fred C., 2105 W.
Lake St., Chicago
Dort Motor Car Co., Flint, Mich.
Eastern Machinery Co., Cincinnati, O.
Emmerman & Co., Louis E., 1761 Elston Ave.,
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Jones Machine Tool Co., Cincinnati
Kinsey Co., E. A., Cincinnati, O.
Little Co., W. F., Cleveland
Lucas & Son, J. L., Inc., Bridgeport, Conn.
McCabe Lathe & Machinery Corp., J. J., 149 Broadway, New York
McCoy-Brandt Mch'y. Co., Pittsburgh, Pa.
McDonald Machinery Co., St. Louis
Marr-Galbreath Mch'y. Co., Pittsburgh, Pa.
Mid-West Machine Tool & Supply Co., Davenport, Ia.
Molitor Mach'y. Co., Chas., 118 S. Clinton St., Chicago
Morey and Co., Inc., 408 Broome St., N. Y.
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Norton-Broadway Mch'y. Co., Cincinnati, O.
O'Brien Machinery Co., Philadelphia
Osborne Mch'y. Co., D. M., Cleveland, O.
Osborne & Sexton Mach'y. Co., Columbus, O.
Ortatt & Co., D. C., Cleveland, O.
Parverson Tool & Supply Co., Dayton, O.
Pittsburgh Model Engine Co., Pittsburgh, Pa.
Randle Machinery Co., Cincinnati
Reeve-Frith Co., 37 S. Desplaines, Chicago
Reliance Mch'y. Sales Co., Pittsburgh, Pa.
Russell Motor Axle Co., No. Detroit, Mich.
Russell Machine Co., Pittsburgh, Pa.
Saltzman, B. L., 524 W. Van Buren St., Chgo.
Smith Machinery Co., H. A., Syracuse, N. Y.
Standard Screw Products Co., Detroit, Mich.
Stocker-Rumely-Wachs Co., 117 N. Jefferson St., Chicago
Stoehr Mch'y. Co., A. M., 844 N. Wells St., Chicago
Strafer, A. F., 20 Church St., New York
Strong, Carlisle & Hammond Co., Cleveland
Tabor, Velick & Co., Inc., Lake & Desplaines Sts., Chicago
Winterer, Herman L., Philadelphia
White Mach'y. Co., A. D., 103 N. Jefferson St., Chicago
Wright, David A., Inc., 601 W. Monroe St., Chicago, Ill.

Shafts, Flexible

Stow Flexible Shaft Co., Philadelphia, Pa.

Shafts, Steel

American Hollow Boring Co., Erie, Pa.

Shaping Machines

Columbia Machine Tool Co., Hamilton, Ohio
Osborne & Sexton Mach'y. Co., Columbus, O.
Rhodes Mfg. Co., Hartford, Conn.
Smith & Mills Co., Cincinnati
Universal Machine & Tool Co., Canton, O.

Shears, Hand

Armstrong-Bloom Mfg. Co., 341 N. Francisco Ave., Chicago
Hendley & Whittemore Co., Beloit, Wis.
Kidder Mfg. Co., J. F., Burlington, Vermont
Lowthwaite Machine Co., T. H., 417 E. 51st St., New York
Quickwork Co., St. Marys, Ohio
Tucker, W. C. & F. C., Hartford, Conn.
Whitney Metal Tool Co., Rockford, Ill.

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Quickwork Co., St. Marys, Ohio

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Quickwork Co., St. Marys, Ohio

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Rhodes Mfg. Co., Hartford, Conn.

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Steels and Chairs, Factory

Kalamazoo Steel Goods Co., Kalamazoo, Mich.

Straightening Machines

Townley Mfg. Co., John T., Cincinnati
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Stud Setters

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Tapping Machines and Attachments

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Rickert-Shafer Co., Erie, Pa.
Whitney Mfg. Co., Hartford, Conn.
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Threading Tools

Armstrong Bros. Tool Co., 308 N. Francisco Ave., Chicago

Tool Holders

Armstrong Bros. Tool Co., 308 N. Francisco Ave., Chicago

Tools, Boring

Armstrong Bros. Tool Co., 308 N. Francisco Ave., Chicago

Tools, Lathe and Planer

Armstrong Bros. Tool Co., 308 N. Francisco Ave., Chicago

Tools, Machinists'

Armstrong Bros. Tool Co., 308 N. Francisco Ave., Chicago

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Columbia Machine Tool Co., Hamilton, Ohio

Wood Working Machinery

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Porter-Cable Machine Co., Syracuse, N. Y.
Townley Mfg. Co., John T., Cincinnati
Whitney & Son, Baxter D., Winchendon, Mass.

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Better now than ever*



I am the

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TRUCK**

I am made in all
styles and sizes
to meet every
requirement.

TAKE A PENCIL and do a little simple figuring. Make your own estimate of how much labor is saved each time a truck is used. Multiply this by the approximate number of times it is employed per day, and this, again, by the labor cost per hour, and you can easily estimate the saving for a month or a year.

EFFICIENCY ENGINEERS have figured this out with great care, and they say that the average truck pays for itself every two or three months, *earning about 500% a year.*

I, the Towsley Truck,

—am such a good truck, because my makers believe that anything which earns 500% a year deserves to be well made. They believe it is economy to build me the best they know how—not to sell at a price, but to last the longest, to give the best service, and to earn the largest dividends. And that is why I have been adopted in so many plants as their standard truck equipment.

*Write to my makers. Tell them your requirements.
Let them help you make money. They are the—*

John T. Towsley Mfg. Co.
1036 Woodrow St., Cincinnati, Ohio

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26" UNIVERSAL THE SHAPER WITH THE TABLE STROKE

A speedy table stroke replaces the ram.
In reality a shaper and planer combined.
It does the work of a small open-side planer.
It insures a new degree of shaper precision.
Takes heavier cuts and increases production.
All shafts equipped with SKF bearings; all
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Built by tool makers and a staff of experts
with a wide experience, and built right.

*Glad to send you the
complete specifications*

**Universal Machine
& Tool Company**

Canton, Ohio



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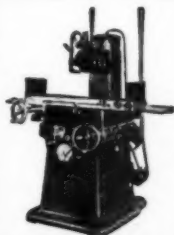
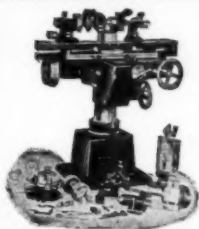
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Wilmarth & Morman Co.

Universal Cutter and Tool Grinders

Surface Grinders

Improved New Yankee Drill Grinders

BECAUSE of:—

**Precision
Rigidity
Convenience of
Control and
Reputation**

are rapidly becoming **STANDARD** Equipment in the important plants of the world.

Wilmarth & Morman Co.

*Manufacturers of Precision
Grinding Machinery Since 1900*

**1185 Monroe Avenue, N.W.
GRAND RAPIDS, MICH.**

"N-B" All-Steel Legs

Make Better and Cheaper Benches

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Made of formed sections of pressed steel, electrically welded, "New Britain" Bench Legs are light in weight, but stiff and unbreakable.

They make *better benching*, independent of wall support, and our patent stringer feature adds the final element of rigidity.

They make *cheaper benching*, because they may be set eight feet apart, requiring fewer legs and less labor of installation.

Free Bench Leg Bulletin fully explains their economy, utility and convenience

The New Britain Machine Company

"Shop Furniture
Originators"



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